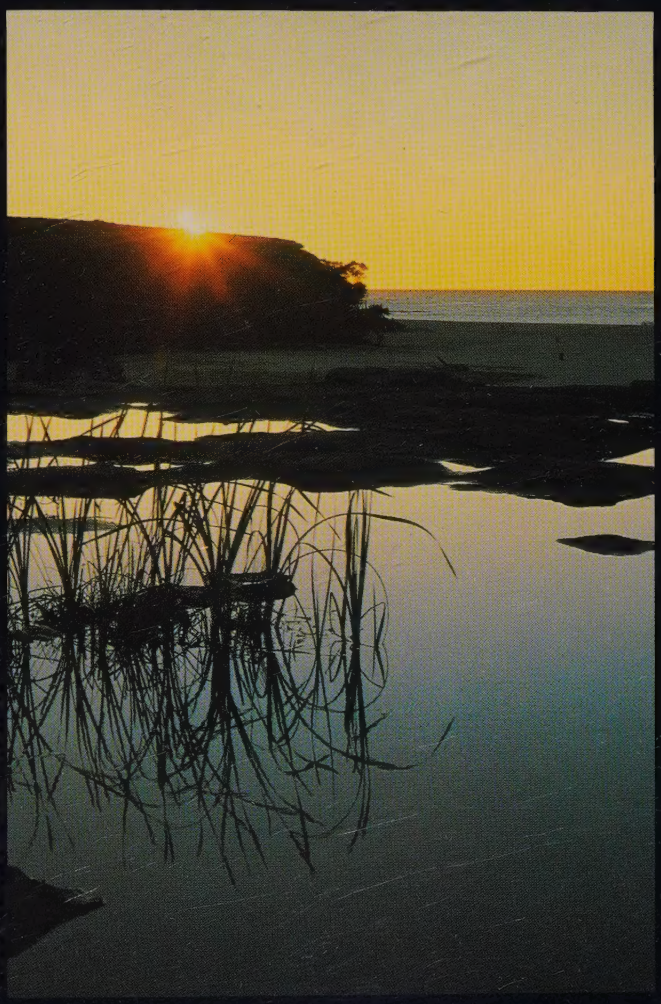
ANNUAL REPORT 1988 – 89



Fair Go For Fish – Habitat Protection

NSW Agriculture & Fisheries

NNUAL REPORT 1988-89

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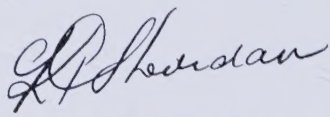
NSW Agriculture & Fisheries

The Hon. Ian Armstrong OBE MP
Minister for Agriculture
and Rural Affairs
Sydney

Sir,
I have the honour to present a report reviewing the activities of NSW Agriculture & Fisheries for the year ended 30 June 1989.



K. P. SHERIDAN
Director-General

Edited by Matthew Stevens
Designed by Erica Jobling
Photography by Graham Johnson,
David Rodgers and John Gasparotto
Division of Agricultural Services

ISSN 0156–255X

NSW Agriculture & Fisheries

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FOREWORD

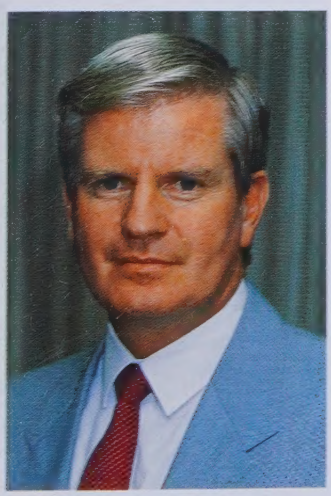
I am pleased to say that the State's agricultural industries have enjoyed one of the best seasons ever, despite flooding in some areas. Although wool prices have fallen from the peak of last year, returns from other major commodities have generally improved.

Agriculture has remained a major export earner and the generally higher farm incomes have significantly boosted business throughout rural New South Wales.

In furthering the Government's policy of more effectively exploiting market development opportunities for agricultural and fisheries products, the Department recruited a small team of specialists to form a unit called **Agsell**. Agsell is concerned primarily with assisting the private sector to increase the export of primary products and to increase investment in the value-added processing of agricultural products before export.

The Hon. Ian Armstrong, MP, OBE, Minister for Agriculture and Rural Affairs, led a small trade mission to Japan in December 1988. Two outcomes were the visit to New South Wales of a party of senior Japanese businessmen and a return visit by the General Manager of Agsell and myself.

A new position of Director of Fisheries was established and the Division of Fisheries was restructured following a review by private consultants. The reorganisation better equips the Department to handle the increasing vulnerability of the State's fisheries.



Some activities outside the Department's primary function were discontinued, notably those associated with tourism, and some property was sold or leased.

The Department entered into a number of significant agreements with private industry to commercialise intellectual property ranging from plant types and animal vaccines to computer software and agricultural machinery.

Sky Channel was used to launch a statewide program aimed at eradicating footrot in sheep. This was a first for the Department and its success demonstrated our ability to produce a complex, high quality, live television broadcast and to attract commercial sponsorship to pay for it.

K. P. SHERIDAN
Director-General

CHARTER

The Department of Agriculture was initially an offshoot of the Department of Mines. The creation of the Department of Agriculture was, then, an administrative rather than a legislative decision. The fisheries of New South Wales were placed under Ministerial control as 'Chief Secretary's Department—Fisheries Branch' in 1911. The Department of State Fisheries was formed in 1976, then integrated with the Department of Agriculture in 1983. The Fisheries and Oyster Farms Act 1935 sets out the powers and functions of the Minister in relation to fisheries generally. The name of the Department was changed to NSW Agriculture & Fisheries in 1988.

CORPORATE GOALS

To benefit the community by maintaining and improving the State's agricultural and fishing industries in keeping with the need for long-term sustainability.

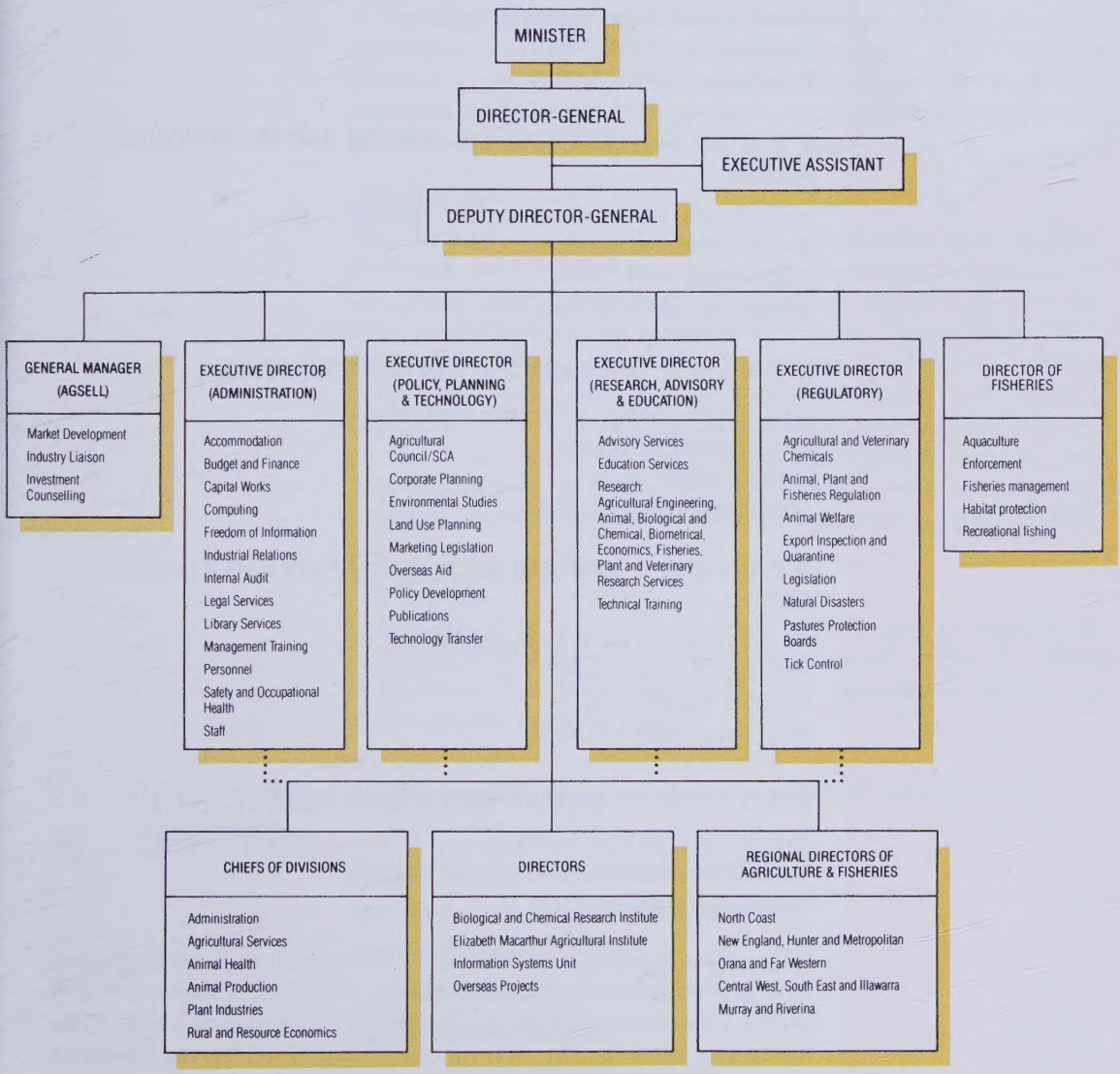
- To increase the productivity and profitability of agricultural industries and fishing.
- To provide market oriented services to maximise opportunities for the development of competitive agricultural and fisheries enterprises.
- To protect agricultural and fishing resources and the environment generally.
- To manage fisheries resources and habitats to maintain their long-term viability for commercial and recreational uses.
- To protect the consumer and benefit the producer by ensuring the marketing of wholesome acceptable produce.
- To manage the Department's financial and human resources efficiently.

CORPORATE PLANNING

The Department has produced a Strategic Plan to carry it through 1989–90. The new plan features clearly defined objectives and strategies, sets a realistic timetable and assigns responsibility to individual officers.

The Executive. From left to right: (standing) Mr Barry Buffier, Executive Director (Regulatory Services), Mr Don Hayman, Executive Director (Policy and Planning), Mr Geoff File, Executive Director (Research and Advisory Services), Mr Phil Small, Executive Director (Administration); (seated) Dr Stan Grimmett, Executive Director (Technology and Education), Dr Kevin Sheridan, Chief Executive Officer, and Mr Graham Gregory, Deputy Director-General.

ORGANISATION STRUCTURE

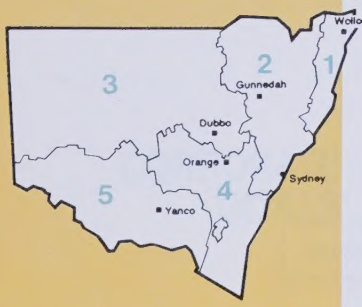


30 JUNE 1989

ACCESS

The Department's principal place of business is the McKell Building, Rawson Place, Sydney, telephone (02) 217 6666, telex AA72418.

The Department of Agriculture's administration is regionalised, with each of the five regions being managed from its headquarters by a Regional Director of Agriculture and Fisheries, located as follows:



R E G I O N 1 NORTH COAST REGION

North Coast Agricultural Institute
Wollongbar, NSW 2480
Telephone (066) 24 0200

R E G I O N 2 NEW ENGLAND, HUNTER AND METROPOLITAN REGION

New South Wales Government Offices
35–37 Abbott Street
Gunnedah, NSW 2380
Telephone (067) 42 9200

R E G I O N 3 ORANA AND FAR WESTERN REGION

New South Wales Government Offices
37 Carrington Avenue
Dubbo, NSW 2830
Telephone (068) 81 1222

R E G I O N 4 CENTRAL WEST, SOUTH EAST AND ILLAWARRA REGION

New South Wales Government Offices
181–187 Anson Street
Orange, NSW 2800
Telephone (063) 63 8250

R E G I O N 5 MURRAY AND RIVERINA REGION

Yanco Agricultural Institute
Yanco, NSW 2703
Telephone (069) 53 0211.

Within the regions, and including metropolitan establishments that are outside the regional system, the Department has 143 public offices of one kind or another in 127 separate areas. (The difference between the two figures is explained by the presence of more than one departmental office in some locations.)

HOURS OF BUSINESS

Normal hours of business are 8:30 a.m. to 4:30 p.m., Monday to Friday.

MANAGEMENT & STRUCTURE

The Department's structure comprises an executive group, production and service divisions, and regions.

THE EXECUTIVE

The Executive is responsible for the overall management of the Department, and for ensuring that government policy is efficiently implemented.

The line of command is from the Minister through the chief executive officer the Director-General, the Deputy Director-General and five Executive Directors. The Executive constitutes a Board of Management, responsible for determining policy. See the organisation chart on page 3.

DIVISIONS

The divisions may be divided into 'production' and 'service' divisions, each headed by a Chief. The production divisions are concerned with agricultural or fisheries technology and the provision of specialised technical services to the producer. They are the Divisions of Animal Health, Animal Production, Fisheries and Plant Industries. The service divisions, which have a supportive role in departmental activities, include the Divisions of Rural and Resource Economics, Agricultural Services and Administration, and the Biological and Chemical Research Institute and the specialist market development group Agsell.

REGIONS

Each Region is under the control of a Regional Director of Agriculture and Fisheries, a position of equal status to a Chief of Division. The boundaries of the five agricultural regions are shown in the map on page 4.

PRINCIPAL OFFICERS

At 30 June 1989 the Department's principal officers were:

Minister for Agriculture and Rural Affairs

The Hon. I. A. Armstrong, OBE, MP

Director-General

K. P. Sheridan, BScAgr, MS, PhD

Deputy Director-General

G. R. Gregory, BScAgr, RDOen

Executive Director (Technology and Education)

S. G. Grimmett, BAgrSc, MSc, PhD

Executive Director (Regulatory Services)

B. D. Buffier, BRurSc(Hons), MEcon

Executive Director (Administration)
P. J. Small, Personnel Admin Cert

Executive Director (Policy and Planning)
D. A. Hayman, BA (NZ), BCA (NZ)

Executive Director (Research and Advisory Services)
G. C. File, HDA(Hons), BRurSc(Hons), MRurSc

General Manager, Agsell
A. M. Smith, MScAgr, PhD

Executive Assistant
F. S. Benecke, WDA, HDRE

Director of Fisheries
R. A. Claxton, BScAgr

Chief, Division of Animal Health
H. Scott-Orr, BVSc(Hons), DipBact (London), MACVS

Chief, Division of Animal Production
I. A. Coffey, BScAgr, DipAgExt, MPA

Chief, Division of Rural and Resource Economics
J. Booth, BAgrSc (Qld), BSc(Hons) (Griffith)

Chief, Division of Agricultural Services
P. A. Witschi, BScAgr

Chief, Division of Plant Industries
L. Cook, BAgrSc (Melb), PhD (UNE)

Chief, Division of Administration
C. J. Cashman, MBA, BComm, BBus

Director of the Institute, Biological and Chemical Research Institute
M. Casimir, BScAgr(1st Class Hons)

Regional Director of Agriculture and Fisheries, North Coast Region
B. D. Scarsbrick, BA(Sc) (Macq), 4th yr AgrSc (Massey, NZ), HDA

Regional Director of Agriculture and Fisheries, New England, Hunter and Metropolitan Region
E. J. Corbin, BScAgr

Regional Director of Agriculture and Fisheries, Orana and Far West Region
O. R. Southwood, BScAgr

Regional Director of Agriculture and Fisheries, Central West, South East and Illawarra Region
D. J. McDonald, MScAgr, PhD (Texas A & M)

Regional Director of Agriculture and Fisheries, Murray and Riverina Region
D. E. Toohey, HDA, Grad Dip Extension

SOIL MANAGEMENT

The Department considers that sound soil management is the key to maintaining profitable agricultural production, whilst safeguarding the soil resource for future generations of farmers.

SOIL STRUCTURE

Studies of the effects of tillage treatment, stubble management and crop rotation on soil properties and crop yields under dryland conditions have continued at Tamworth and Wagga Wagga. In the north, no-tillage improved the structure of vert. and thus fallowing efficiency and (with adequate nitrogen) wheat yields in dry seasons. In contrast, stubble burning gave higher yields when soil nitrogen status at sowing was more important than soil water.

Research on irrigated clay soils in the northwest has demonstrated that optimum soil structure for cotton production can be obtained using a combination of minimum tillage, gypsum, occasional deep tillage (when the soil is sufficiently dry), deep rooting rotation crops and irrigation techniques that minimise waterlogging. To help soil advisory officers advise farmers, a soil management package for irrigated cotton production on clay soils called COMPACTOR is being developed. The first stage is a field manual called SOILPAK which was used by advisers at a soils workshop in the Namoi Valley.

For irrigated cotton producers the Department has a Soil Management Service in the Macquarie Valley, based on the examination and sampling of backhoe pits. Approximately 40 per cent of cotton producing areas are regularly inspected by the Service. A similar service was established in the Namoi Valley.

SOIL ACIDITY

Surface soil acidity affects more than 13 million ha of N.S.W. Increased subsoil acidity has been recognised in recent years.

Studies of soil acidification rates have confirmed the value of the perennial pasture plants lucerne, cocksfoot and phalaris in minimising nitrate leaching, a major cause of acidification. The effectiveness of pasture growth stage and of lucerne in recovering nitrate mineralised over summer continues to be investigated.

Advisory activities focused on the judicious use of lime and other liming materials. Lime trials and demonstration

Measuring the salt content of the soil is important in formulating strategies for the management of salt-affected land.

continued and a Soil Acidity Workshop for North Coast advisers was held at Alstonville.

IRRIGATION SALINITY

Salinity and associated waterlogging are increasing in NSW irrigation areas. In the Deniliquin region the area of irrigated land affected by high watertables (less than 2 m from the surface) was 22 000 ha in 1985, but had risen to 58 000 ha by 1988.

Long-term experiments are being conducted at Deniliquin on the re-use of saline-sodic groundwater on lucerne, irrigation scheduling of pastures and the effect of slope and layout on water use efficiency and agronomic performance of crops. These experiments and other district trials are providing information on changes in groundwater accessions and salinity.

Salinity advisory officers have been very active in the use of the media, producing publications and liaising with community groups. A series of 45 brief radio segments on salinity, called 'Salt Tips', went to air and was subsequently published as a booklet.

Salt Action, the State Salinity Control Strategy, began operation in the Murrumbidgee and Murray Valleys with the formation of a Riverina Regional Salt Action Committee. The main function of the Committee is to promote and support local community groups in addressing local salinity issues.

The Department formed a Salinity Project Team in the Murray and Riverina Region with the aim of coordinating advisory activities in salinity management and control. The Team also identified research needs and organised training for salinity advisers.

SOIL.pak: a field manual developed to allow growers to assess soil damage caused by a wet cotton harvest.

TREES ON FARMS

Sustainable agriculture includes replanting trees on farms.

Farm trees help reduce soil structural degradation and resulting runoff and erosion, and assist in decreasing wind erosion and preventing salinity and waterlogging. They also provide shelter for crops and livestock and habitat for wildlife.

Research is continuing on insect pests associated with eucalypt dieback on the Northern Tablelands. NSW Agriculture & Fisheries and the Forestry Commission established an agroforestry trial near Casino to study the performance of eight legume pasture species sown under regenerating spotted gum.

Requests from farmer groups for advisory activities in their area continued to increase. Eleven field days and 13 seminars were conducted throughout the State, twice as many seminars as the previous year.

Four new titles in the Farm Trees series were published. These are *Establishment Techniques for Farm Trees, Farm Planning for Tree Establishment, Tree Planting for Gully Erosion Control* and *Designing Windbreaks for Farms*. These booklets have been very popular with farmers.

Tree planting on six of the 10 demonstration farms in the Murray and Riverina Region was completed and two demonstration plantings were established on the North Coast. The Finley Arboretum, which demonstrates farm tree species and planting designs suitable for the Finley district, was established in cooperation with the local community.

The sewage sludge application trials at Glenfield are harvested to measure growth and to analyse for heavy metal residues.

USE FOR ORGANIC WASTES

Guidelines for the effective use of organic waste from sewage, feedlots, piggeries and poultry farms on agricultural land are being developed, based on departmental research. These will ensure the safe and beneficial use of the materials so that public health and the environment are protected. Research results indicate that the use of organic waste on agricultural land will expand in inland NSW. Industry funds of $750 000 have been committed to this project.

IRRIGATION MANAGEMENT SERVICE

FARM WATER SUPPLY LOANS

NSW Agriculture & Fisheries recommends to the State Bank on the technical desirability of loans for irrigation works.

This year the Treasury specified that only $2.3 million of works could be approved and $1.7 million could be made in payments. Approvals and payments actually made by the State Bank were very close to these figures.

This year applications for loans on works valued at $3.5 million were examined for the Bank. About half the applications for funds were in the Murray and Riverina Region.

ADVISORY

Waterforce is a national program conducted jointly in NSW by the Irrigation Association of Australia and NSW Agriculture & Fisheries. During 1988–89 the Department implemented an advisory program in the Macquarie Valley to improve soybean growers' productivity and water use efficiency. A similar program at Mudgee assisted in improving the yield of irrigated grapes without affecting quality.

Estimating crop water use. A workshop was held at Dubbo to examine the future direction of advisory programs in the area of plant water use estimation. It found that the Department's current information services were used widely as a guide to the timing of irrigations and should be continued.

RESEARCH

NSW Agriculture & Fisheries began an evaluation of the use of remote sensing for distance measurement in irrigation layout. Preliminary results indicate that this technique requires only half the time of conventional manual methods.

COLLABORATION

Irrigation farm design standards. The Department participated with the Irrigation Association of Australia in a national program to produce codes of irrigation design practice.

Micro-irrigation. The Department assisted in the organisation of the Fourth Micro-Irrigation Congress held at Albury. Attended by about 500 delegates representing 26 countries, the congress permitted Australian irrigation industry to be promoted widely.

WEEDS

During the year the echium moth (*Dialectica scalariella*) was released on Paterson's curse (*Echium plantagineum*) at 96 sites in NSW. Eight thousand potted plants containing 200 000 moth larvae were distributed at sites ranging from Kyogle in the north to Albury in the south and Carrathool in the west.

Establishment was excellent at most sites and moths spread up to 15 kilometres from point of release. Viper's bugloss (*Echium vulgare*) has proven an excellent alternative host owing to its more prolonged growth into summer.

Prickly pear (*Opuntia* spp.) levels throughout the State were monitored by the Prickly Pear Surveillance Unit. Cochineal insects (*Dactylopius* spp.) were distributed by the Unit where problems occurred.

ADVISORY

Special awareness campaigns were conducted during the year on dodder (*Cuscuta* spp.), blue heliotrope (*Heliotropium amplexicaule*) and Parramatta grass (*Sporobolus africanus*). Programs on parthenium weed (*Parthenium hysterophorus*) and serrated tussock (*Nasella trichotoma*) continued.

The Weed Research and Demonstration Units at Orange and Glen Innes tested many herbicides on various crops for efficacy and crop phytotoxicity. They held over 50 field days.

Dodder. Problems with dodder continued to increase, especially in lucerne-growing areas. Dodder Action Groups were set up in the Upper Hunter and Namoi River areas where landholders, government and other interested groups were involved in awareness and control programs.

Blue heliotrope is of increasing concern in the Castlereagh Macquarie area and an advisory campaign is being conducted to make growers aware of the problem.

Parramatta grass continued to spread alarmingly on the North Coast and many field days and meetings were arranged for landholders.

Wiregrass is a very serious weed in the northern tablelands of the State. Research has shown that strategic grazing and spelling encourages desirable species and reduces wiregrass. The formation of the Wiregrass Action Group again promoted this management strategy widely throughout affected areas of the State and a producer survey showed that 61 per cent were using grazing management practices to control the weed. The action group has also developed WIREMAN, a computer program that interprets the economics of the wiregrass control strategy for individual paddocks.

Woody weeds. The encroachment of woody weeds on grazing land poses a serious problem in the Western Division of NSW. The formation of the Woody Weed Taskforce brings together all interested government agencies and landholders to develop ways to manage woody weeds and create sustainable grazing systems.

Management burning for woody weed control, Wilcannia.

RESEARCH

Vulpia (silver grass). Extensive herbicide evaluations at Wagga Wagga over the last three years have shown that low rates of simazine (1.0 to 1.5 L/ha) provide cost-effective control of vulpia (*Vulpia bromoides* and *V. myuros*) at $4 to $6/ha. Research is currently under way to confirm the optimum rates and times of application and to determine the safety of simazine in a wide range of pasture legumes. Spraytopping in spring with either glyphosate or paraquat is very effective for control of vulpia, and also increases its feeding value (protein, soluble carbohydrates and *in vitro* digestibilities) during spring and early summer.

Chlorsulfuron. Trials at three sites in southern NSW have examined over three seasons the effect of soil pH and weather on the activity of chlorsulfuron in barley, wheat and annual ryegrass (*Lolium rigidum*). Crop damage from the recommended application rates of chlorsulfuron in barley, and to a lesser extent in wheat, is significant over a wide range of soils and climates, and is not restricted to the acid soils of southern NSW. The data suggest that the weather conditions are more important than the soil characteristics in causing the variable activity of chlorsulfuron in this environment.

Wild oat population dynamics. April sowing minimised the emergence of wild oats (*Avena fatua* and *A. sterilis*) with the crop and reduced wild oat density compared with the June sowing in a trial at Tamworth. Wild oats reduced yields by 15, 24 and 11 per cent for the April, June and July sowings respectively but any advantage in reduced wild oat competition from early or late sowing was negated by reduced yield potential. April-sown wheat yielded 23 per cent less and July-sown wheat 40 per cent less than the June sowing. Reduced competition by wild oats with earlier sowing could be exploited by sowing a wheat variety with an early optimum sowing date.

Biological control of wild oats. Isolates of a seed-borne fungus have been collected from several grass hosts throughout southern Australia. Studies have identified the mechanism controlling sporulation and it is now possible to produce conidial inoculum. Considerable variation in growth, sporulation and response to culture media is evident among isolates. This is an encouraging indication that desirable specificity and pathogenicity may exist within the collection.

Mycoherbicide for Bathurst burr. The promising results with the use of an indigenous fungal pathogen (*Colletotrichum* sp.) for control of Bathurst burr (*Xanthium spinosum*) have continued and the Department is now commercialising this technique with a private sector partner.

REMOTE SENSING

The use of remote sensing by NSW Agriculture & Fisheries staff for resource management increased during the year. The Remote Sensing Section ran two short courses for officers during the year on the interpretation of Landsat data and the use of geographic information systems.

ADVISORY & OPERATIONAL PROGRAMS

Landsat satellite images covering 50 per cent of NSW are used by district advisory officers.

During the year the Western Division Resource Monitor became an operational program. The monitor is a collaborative program between seven State Government organisations and the NSW Farmers' Association. It provides five services to participating agencies: imagery, training and advice, collaborative aerial surveys, annual cropping, annual clearing and mapping of woody canopy cover after significant rainfall. The work on mapping woody canopy cover was included after completion of a successful research and development project.

Operational geographic information system (GIS) facilities were established in Head Office, at Cobar and at Bourke to provide local officers with the means of analysing information on woody cover, particularly woody weeds. A GIS workshop was conducted at Trangie for staff of the member agencies of the Western Division Resource Monitor.

RESEARCH

A weed detector which allows reduced herbicide use by spraying only green foliage in a fallow paddock was provisionally patented and commercial expressions of interest in developing a commercial prototype were sought.

The winter cereal cropping work was conducted for the fourth consecutive year. A significant database on cropping practices in the Nyngan and Walgett areas is accumulating.

French SPOT stereoscopic data were evaluated for use in mapping agricultural suitability in the Tablelands of NSW.

COLLABORATION

The Department participated in a working party set up by the Federal Government to develop a strategy for commercialising the remote sensing industry.

FIBRES & OILS

Mice were active in late summer and autumn in the north of the State. The Department issued pesticide orders to allow use of bait stations to assist control in soybean crops, but these have practical limitations. Oilseed industry funding assisted with the allocation of a Research Officer and a Technical Officer to study chemical control and habitat manipulation as means of dealing with mouse plagues.

COTTON

Soil scientists at Narrabri continued to refine Soilpak, a soil management package which brings together the latest research information and observations on the management of the grey and brown cracking clays on which NSW cotton is grown. The latest edition of the field manual was released to advisers and consultants for evaluation.

The soil management advisory service, which has operated very successfully in the Macquarie Valley for two years, was extended to the northern cotton growing areas. In the Macquarie Valley 40 per cent of cotton fields are monitored. Workshops have been held to demonstrate how gross structural degradation can be recognised in the field and have been enthusiastically supported by private advisers and consultants.

Scientists have suspected for many years that nutrient imbalances may be the cause of small pockets of reduced yields which occur in the midst of high yielding areas. Preliminary studies on some of these problem areas have shown crop responses to zinc, but other trace elements are also thought to be involved. A better understanding of the importance of micronutrients in cotton nutrition should provide benefits to the whole industry.

Research continued on insecticide resistance in the cotton bollworm (*Heliothis armigera*). Heliothis pressure was generally low throughout the season, but pyrethroid resistance levels in *H. armigera* peaked at 60.7 per cent compared with the previous high of 44.5 per cent. This may have resulted from the dry early season, concentrating populations on sprayed crops, which would have increased selection pressure. Control problems may occur next season if *H. armigera* numbers are high.

SOYBEAN

Two new soybean cultivars were released from the Narrabri breeding program and will be available for commercial production in 1989. Alabaster is a special purpose cultivar suited to the manufacture of food products such as tofu and soy flour. It will help meet the growing domestic demand for soybeans for human food products and will also have potential for export to Asian markets. It is the first cultivar of this type bred specifically for irrigated production in northern NSW. A new variety called Lachlan was released for production in the Lachlan Valley. Its main feature is its resistance to phytophthora root and stem rot, a disease which had made soybean growing uneconomic in parts of the Valley because of the susceptibility of older cultivars.

Growers continued to adopt advanced management support systems, such as SOYCHECK for soybeans and CANOLACHECK for canola (rapeseed). Working with small groups of farmers during the growing season, district agronomists and crop specialists use these crop checking systems to help growers identify and overcome weaknesses in their crop management. At the end of

the season comparative analyses of costs and returns from each crop clearly identify the benefits of superior management. As a result, growers produce more profitable, higher yielding crops and agronomists are accumulating useful data on crop management for each district.

CANOLA

Canola is the new name for rapeseed. New varieties, bred by the Department, will be marketed overseas, generating royalties for the Department.

Canola is the new name for rapeseed. The name reflects the much higher oil and meal quality now produced, and brings Australia into line with Canada, the world's largest exporter. The improved oil is now marketed through supermarkets as canola oil. The lift in quality has led to an increase in the value of canola relative to other oilseeds.

The improved crop quality is a direct result of new cultivars released from the Department's breeding program at Wagga Wagga. The first two of these superior cultivars, Maluka and Shiralee, are not only of higher quality but also yield 20 per cent more than the cultivars they replaced. They were grown commercially for the first time in 1988–89 and have almost totally replaced the older varieties in Australia and New Zealand. Another new cultivar, Eureka, was released during the year as a replacement for Maluka in 1989–90, which it outyields by 5 per cent. Eureka has also proved less susceptible to pod shattering than earlier cultivars.

Exclusive overseas marketing rights for Maluka, Shiralee and Eureka have been granted to a NSW seed company in a commercial agreement. The company has arranged testing of the cultivars in Europe and in the first year's trials there Shiralee was among the top yielders. Under the agreements the Department will receive royalties on seed sales.

An extension campaign to encourage canola growers to apply more nitrogen fertiliser to their crops has paid dividends. The campaign followed two years of field research which clearly demonstrated the economic benefits of increased nitrogen. Better nutrition, higher yielding varieties and the wider adoption of the crop management system CANOLACHECK resulted in the highest ever average canola yields on record in NSW, estimated at 1.3 t/ha.

TEA TREE OIL

Research has shown that the oil content of tea tree leaves varies from hour to hour.

Tea tree oil production continued to expand as new plantation areas began producing. Oil production for 1988–89 is estimated at about 50 tonnes, up from 30 to 35 tonnes the previous year.

Research at the North Coast Agricultural Institute has shown that the major factors controlling plant yield are the choice of site and the level of weed and insect control. However, oil concentration varies considerably, not only from month to month but also from week to week and even from one time of the day to another. Studies have shown that the oil level in the leaves can vary by as much as 20 per cent during a single day. Research has shown that tea tree oil contains 86 named compounds, 34 of them present in more than trace amounts.

GRAIN PRODUCTION

A major outbreak of cutworms (caterpillars of the bogong moth *Agrotis infusa*) in the northwest of NSW during the 1988 winter threatened over 50 000 ha of emerging wheat crops. Trials at Nyngan showed that pyrethroid insecticides controlled cutworms at less than a quarter of the cost of the standard insecticide. Pyrethroids were widely used by growers to control the outbreak, following the issue of pesticide orders by the Department, and proved highly effective.

CROP IMPROVEMENT

A number of new grain crop varieties were released during 1988–89 from departmental breeding programs. These included the strong-strawed, two-row barley Skiff, the high quality grain oat Yarran, the early maturing, medium-grain rice for the Murray Valley Echuca, and the speciality long-grained rice Doongara.

The rapid expansion of pulse crops has exposed them to diseases for which there are few, if any, chemical control agents. Cucumber mosaic virus caused significant yield losses in lupins, as did mycosphaerella and ascochyta blight in field peas. Considerable research efforts were directed towards screening varieties for disease resistance and promoting rotations designed to break disease cycles.

Chickpeas are an excellent grain legume crop but major losses from root rot disease have deterred grower acceptance. Investigations over three seasons have shown that the fungus *Phytophthora megasperma* causes root rot throughout the northwest and central west of NSW. The root lesion nematode *Pratylenchus thornei* causes a less obvious root disease with yield losses in some crops. Sources of field resistance to *Phytophthora megasperma* are available and incorporating this resistance into commercial varieties is the top priority for the chickpea breeding program at Tamworth.

'Operation Quality Wheat', a major program to improve wheat yields and grain quality, gained momentum and a number of management systems, including RICECHECK and the '10 kg Club' were refined. The '10 kg Club' aims to improve water use efficiency in wheat production by achieving 10 kg/ha of grain for each 1 mm of water received.

Field trials showed that where crop residues were maintained and herbicides were used for total weed control, stored soil moisture increased by as much as 30 mm over conventionally cultivated land and yield increases of 0.5 tonne per hectare were common. Greater flexibility in planting was possible through earlier trafficability by equipment.

The use of maize for silage continued a steady expansion following a series of feeding trials which highlighted the significant liveweight gains of beef cattle under feedlot conditions.

ADVISORY

The flow of technical information to advisory officers increased considerably during the year. For the first time the Northern and Southern Cereal Improvement conferences were combined in a meeting at Dubbo, affording the opportunity for district agronomists from all grain belt districts to meet and discuss the progress and direction of research and advisory programs.

The completion of the comprehensive database WHEATBASE provided research and advisory officers with a greatly expanded range of information on the performance of experimental crossbreds and newly released varieties. Information on specific sowing times and performance under varying climatic regimes can be accessed remotely.

The *Cereal Management Guide* was improved and demand was so great for the 1989 edition that the 8000 copies printed were exhausted within a month of delivery and a further 3000 had to be printed.

PASTURES

Pastures are the basis for about 60 per cent of the agricultural income of NSW. The Department's objective is to develop and maintain stable pasture systems, ensuring the preservation of soil fertility.

Assessing Consol lovegrass for production and persistence. This cultivar and 15 other species of grass are being assessed in the western plant evaluation program.

ADVISORY

Pasture establishment. The program to increase the success of pasture establishment lifted the average success rate from 49 per cent in 1983 to 61 per cent in 1988. Future advisory programs by district officers will concentrate on the specific problems for their particular district that were revealed in a recent survey.

Pasture species. Information collected from experiments conducted by research agronomists and advisory staff was used to update the pasture variety recommendations, included in seven new Agfacts.

LATIS (the Lucerne Agronomy and Technology Information System) was further developed with two new modules. LUCVAR gives information about lucerne varieties, while LUPEST provides information that will enable producers to make environmentally sound decisions on pest control procedures.

In the 1989 Royal Agricultural Society of NSW software competition (60 competitors from all states and overseas), LUPEST was the winner of the ICL special award for a program that embraces the leading edge of technology, and won second prize in the production category for programs with a high degree of ingenuity and innovation.

Pasture management. A series of experiments was established to relate pasture production to wool, milk and meat production. The information gained will be used to refine grazing models used by advisory staff.

A pasture management system, called SUBCHECK, was introduced by agronomists to help farmers maximise their returns from subterranean clover pastures.

Rangeland. The encroachment of woody weeds on grazing land poses a serious problem in the western division of NSW. The formation of the Woody Weed Taskforce brings together all interested government agencies and landholders to develop information about the recommended ways to manage woody weeds and create sustainable grazing systems.

Sheep are used to graze subterranean clover plots at Temora. This trial is being used to select a new disease-resistant midseason variety.

RESEARCH

Crop improvement. The release of Avila and Elgara varieties of serradella for commercial use has ensured an improved match of varieties and growing conditions. The NSW Seed Increase Committee assumed responsibility for arranging the development of seed supplies of Consol lovegrass for commercial use in acid sandy country.

The National White Clover Program, based at Glen Innes, collected 380 white clover lines. The first batch was screened and seed-increased preparatory to field characterisation.

- The management of maize for dairy silage was studied in coastal districts.
- Programs were begun to select improved perennial ryegrass lines with increased disease resistance for high rainfall areas and to understand the agronomy of lotus species on poorly drained pasture land.
- The *Trifolium brachycalycinum* lines of subterranean clover are proving to be particularly promising on the Northern Slopes.

Native pasture grasses. Australian native grasses have enormous potential as commercialised cultivars. Research has highlighted the importance of *Danthonia linkii* (wallaby grass) and *Astrebla lappacea* (curly Mitchell grass) and has led to a clear understanding of the propagation mechanism of the latter.

LEGUME INOCULANTS

The Australian Inoculants Research and Control Service was established and is financed by the Australian Agricultural Council to control the quality of legume inoculants before release and to test the standard at retail outlets in all States. A total of 447 cultures were tested during production, of which 390 were passed. Of the 204 packeted inoculants tested from retail outlets only two failed to reach the necessary standard.

FRUIT

CITRUS

Citrus is now the State's largest fruit industry with 26 per cent of total plantings. The industry continued to expand, particularly in the MIA and Lower Murray Valley, but the 1988-89 crop was the smallest for five years and 19 per cent below the previous record crop.

Advisory programs. Wind blemish was identified as a major cause of down-grading of fresh orange fruit accounting for up to 35 per cent of all reject fruit. Natural and artificial wind break demonstrations were established. Small fruit size is also of concern in fresh marketing and a trial was begun at Hillston to reduce alternate bearing of oranges and to improve fruit size by thinning in heavy crop years. A significant reduction in tree crop load (average 24 per cent) and improvements in average fruit size at harvest (27 per cent increase in large to very large fruit) was achieved with thinning sprays.

Long-term projects were developed to increase juice sweetness and reduce acidity. These aspects will become increasingly important as growers will soon be paid on the basis of juice quality as an alternative to total tonnage of fruit delivered.

Crop improvement. The long-term research on horticultural clonal evaluation and virus indexing continued. This work supports the supply of superior bud wood and seed to industry from the Department's citrus multiplication scheme.

Interest in new navel types continued. Of special interest were several clones of very early or late 'summer' navel which offer the potential to replace imports from the northern hemisphere. The most promising of these were collected and virus indexed before inclusion in planned horticultural evaluation projects.

The first citrus clones to be imported to Australia in 20 years were recently released from the Plant Quarantine Station at Rydalmere. These included Clementine mandarins from Spain which may have potential for export, particularly to European markets. Safe and more rapid clearing of clones through quarantine has been made possible by research using shoot tip grafting techniques for disease elimination and new biochemical indexing techniques. The clones will be evaluated in new projects that will include the development of management strategies to ensure large seedless fruit.

Crop protection. Narrow range petroleum spray oils are effective against scale insects and are non-toxic to beneficial species. Entomologists from BCRI compared a new controlled droplet sprayer with a standard boom sprayer for scale control. The trial demonstrated that the new machine could save growers up to 70 per cent in oil spray costs.

VITICULTURE

Crop improvement. The MIA Vine Improvement Society (MIAVIS) cut and sold a record 2.7 million grape vine cuttings in 1988. Included were 55 000 cuttings of the new Semillon clones DA16162 and TO8901, selected in the Hunter Valley by NSW Agriculture & Fisheries.

A strong research and advisory program, promoting the use of nematode-resistant rootstocks, has resulted in a heavy new demand for these rootstocks in both the MIA and Hunter Valley.

To meet future anticipated demand for nematode-resistant rootstocks, the Society has acquired the lease of 16 hectares at Yenda near Griffith for the expansion of rootstock mothervine plantings. Development of the plantings will be funded by MIAVIS.

Soil and irrigation management. At Mudgee large yield increases from 25 to 45 t/ha have been obtained by improving trickle irrigation installations and scheduling irrigation using a neutron moisture meter. Results were communicated to growers at a field day and became especially relevant owing to dry autumn conditions resulting in severe stress, reduced yields and poor finish in unirrigated vineyards.

A six-year project to determine the effect of saline irrigation water on the growth and yield of sultana grape vines has been concluded at Dareton. The effects of salt treatments were stabilised by the fourth season. All treatments above the lowest of 350 EC units reduce yields by 17.5 per cent per 1000 EC units' increase in salt applied, showing a lower salinity threshold than previously thought.

In the Hunter Valley a very successful two-day Autumn Vineyard Seminar was held on 'canopy management'.

DECIDUOUS FRUITS

Establishment of Deciduous Fruits Section. The positions of Principal Horticulturist (Pome Fruit) and Principal Horticulturist (Stone Fruit) were deleted and a new position was created of Principal Horticulturist (Deciduous Fruits) supported by two new positions of Special Horticulturist (Deciduous Fruits) at Bathurst and Gosford.

Export development. During November 1988 a cherry export workshop was held at Young in conjunction with the Commonwealth Department of Primary Industries and Energy to facilitate exchange of information and to improve co-ordination of export inspection in the various states.

Departmental officers assisted in the formation of the Sugar Plum Industry Association comprising prune growers from Young and the MIA. The Association adopted departmental recommendations for improved handling and packaging of sugar plums for export markets. The Association has also begun promotion and development of sugar plums as a new product on Australian markets.

Apple Industry Taskforce. The Principal Horticulturist (Deciduous Fruits) was appointed to the committee of this taskforce which aims at developing strategies for more successful and profitable marketing of the NSW apple crop.

The taskforce held a number of successful meetings during the year including a marketing seminar at Batlow during May. This seminar attracted about 150 pome fruit growers and representatives of related industries with an interest in developing the NSW apple industry.

Crop protection. European red mite (*Panonychus ulmi*) has replaced twospotted mite (*Tetranychus urticae*) as the most serious pest of apples in NSW. A pesticide-resistant predatory mite (*Typhlodromus pyri*) is being progressively released into orchards in an attempt to control the pest, complementing the existing integrated mite control program which has been so successful for twospotted mite. Many growers still rely heavily on the potent ovicides hexythiazox and clofentezine for control of European red mite. However, departmental tests at Orange confirmed that European red mite from various sites in NSW, Queensland and Tasmania had developed resistance to these miticides, generally after only four sprays. Serious control problems could occur next season.

As a result of departmental research, orchardists in areas subject to damage by flying foxes are advised to use netting of 90 mm square mesh or less, and not to rely on expensive electronic devices.

Crop improvement. During 1987 over 40 new peach, nectarine and plum varieties were released from quarantine in NSW and initial evaluation of these began in the 1988 season. Thirty-nine additional stone and pome fruit varieties were released during May 1989.

An estimated 1.5 million strawberry runners were produced under the Department's Strawberry Certification Scheme. Final evaluation of two NSW Agriculture & Fisheries strawberry selections named Somerlong and Somerlate was completed at Gosford Horticultural Research and Advisory Station and arrangements are now in progress to commercialise the varieties.

The Department distributed approximately 14 kg of virus tested cherry seed during the year and will also distribute an estimated 15 000 virus-tested plum rootstock cuttings during May and June. Orders for 20 000 virus-tested apple buds were also supplied.

The Pest-Check phone-in for MIA prune and canning fruit growers continues to provide a useful service to these industries. The prune rust management system, which identifies weather conditions favourable to prune rust, is now operating at Young as well as in the MIA.

BANANAS

Research into tissue culture, plant density and cover crops continued. High density plots, although capable of producing more bunches, have been shown to ratoon more slowly. This could be an advantage if harvesting is out of phase with normal gluts. Cover crop plots recorded slightly lower yields but had better soil pH and higher nitrogen, potassium, calcium and magnesium levels.

A trial was set up near Coffs Harbour to assess the suitability of secondary treated sewage effluent for irrigating bananas. Preliminary results indicate no immediate soil or plant problems.

Industry recently expressed its concern at large brown blemishes on the side of fruit after harvest, and a 'water-soaked' type of blemish. Chemical analyses revealed that deficiencies of calcium and boron may be involved.

Banana weevil borer (*Cosmopolites sordidus*) populations increased substantially owing to the mild winter and prolonged wet weather. Initial tests indicate that resistance to currently registered insecticides has appeared in some populations of this pest; this could pose serious control problems. An integrated pest management program based on the use of parasitic nematodes and varied cultural operations was further developed. Seventeen trial sites were established with cooperating growers to release a total of 3000 million nematodes a month. Work continued on defining more accurately a treatment threshold for banana weevil borer.

NSW Agriculture & Fisheries promoted an approach to controlling banana spider mite (*Tetranychus lambi*) with the emphasis on reduced pesticide use.

Advisory officers worked with industry in promoting measures to reduce blemish on fruit and developed a video to assist in this program.

COFFEE

The performance of 15 coffee varieties was evaluated in trials in northern coastal NSW. A 0.6 ha plot was prepared at Alstonville to test mechanical harvesters more suited to small and moderately sloping sites. Hand harvesting accounts for about two thirds of the farmgate value of coffee beans.

LYCHEE

A simple maturity test based on titratable acidity was developed. It is anticipated that this will also be used as the basis for industry maturity standards.

CUSTARD APPLES

Trials demonstrated the sensitivity of custard apples to cold storage where one day at 4°C or less causes serious and obvious damage. Field splitting of fruit was shown to be related to drought and cold.

PASSIONFRUIT

NSW Agriculture & Fisheries has developed new varieties that appear to be outstanding in yield, disease resistance and fruit processing characteristics. They were distributed to 50 growers for final assessment before being released for widespread commercial use.

POSTHARVEST

Research professionals in postharvest technology discussing plans to improve market quality of tomatoes.

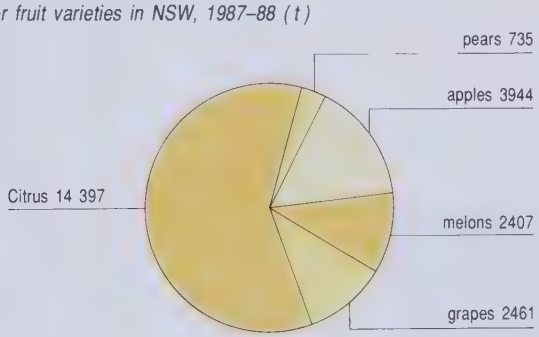
The major area of wastage in the horticultural industries occurs during postharvest handling of produce. Losses are estimated at up to $30 million for NSW producers.

Research was directed at solving problems in the storage, handling and marketing of horticultural produce, to develop better technology to maintain fruit and vegetable quality and to prevent wastage. Much of this work is conducted in cooperation with the CSIRO Divisions of Horticulture and Food Processing, and is part funded from national sources.

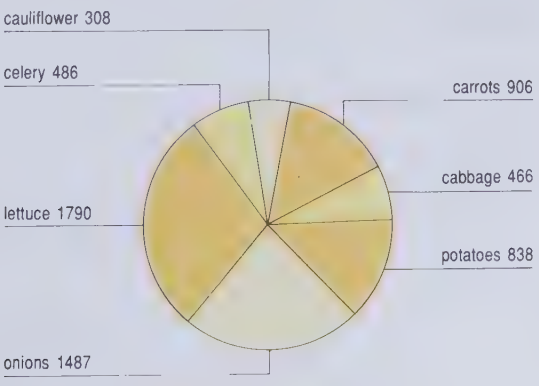
The major advisory publication is the Export Note series which contains information for priority products on the marketing, postharvest preparation and regulatory requirements for the export market. Although directed to the export market it is also appropriate to the domestic market. Ten notes were completed during 1988-89, including ones on oranges, low chill peaches, cherries and sugar plums.

To define market requirements and monitor trends in export and domestic produce, information from many sources was analysed using statistics collected by the Export Inspection Service, the Department of Primary Industries and Energy, Customs and the Australian Bureau of Statistics. Information analysed includes volume of export by commodity, destination and change over time.

Export of major fruit varieties in NSW, 1987–88 (t)



Export of major vegetable varieties in NSW, 1987–88 (t)



VEGETABLES

The Hon. Ian Armstrong, MP, Minister for Agriculture and Rural Affairs, inspecting the Pesticide Residues Laboratory at BCRI at the launch of a program to monitor pesticide levels in fresh fruit and vegetables.

VEGETABLE EXPORTS

In very wet conditions at the end of harvest and during storage, the incidence of fungal and bacterial infections increased but departmental disease control strategies were successfully used by a number of growers. Benefits were seen in the MIA through better control of plant populations, nutrition, irrigation and postharvest treatments.

PESTICIDE RESIDUE SURVEY

Regular monitoring for pesticide residues in fresh fruit and vegetables going through Sydney's Flemington Markets was started by the Department in cooperation with the Sydney Market Authority during 1988. Of the 9000 chemical analyses performed on 600 samples only two showed pesticide residues above the maximum residue limits. These results indicate widespread industry adherence to regulations governing the use of pesticides. The current sampling procedures allow traceback to producers if unacceptable residues are detected.

POTATOES

Processing companies maintained interest in departmental trials of new cultivars with potential for crisp production. Several numbered lines from Victoria and a few named cultivars from America and Europe performed particularly well with good tuber shape and excellent dry matter content.

Representatives of seed producers, processors and NSW Agriculture & Fisheries constituted a Working Party which developed procedures for transfering responsibility to industry for the NSW certified seed scheme. Administration, record keeping and production details will be industry responsibilities while inspections and certification will still be done by departmental officers. The changeover began during the year when plantlets from a commercial tissue culture laboratory were used as the planting material for the first field generation instead of mini-tubers produced at Yanco. The plantlets performed well and yielded quantities of foundation seed comparable with production from mini-tubers.

Asian vegetables (here, longbok) are evaluated under Australian conditions at Gosford Horticultural Research and Advisory Station.

TOMATOES

Some processors introduced bonus payments for fruit with total soluble solids (TSS) percentages above a calculated base level. This move increased grower interest in research and advisory programs aimed at maximising TSS levels. An advisory program at Finley demonstrated the value of accurate irrigation scheduling close to harvest while a joint research project involving NSW and Victorian officers began studies on the effects of nitrogen and potassium nutrition on total soluble solids content.

CAPSICUM

Research at BCRI has shown that cucumber mosaic virus is probably transmitted through contaminated soil under glasshouse conditions. This has important implications for a whole range of glasshouse-grown crops. Research has also revealed that one of the viruses infecting capsicum had been wrongly called tobacco mosaic (TMV) when it was actually pepper mild mottle (PMMV). With resistance bred world wide for TMV, capsicum crops were continually ruined in most countries because of PMMV infection.

Large-scale hydroponic tomato production.

ASIAN VEGETABLES

Screening trials of Asian vegetables at Gosford identified suitable species for domestic and export markets. Japanese bunching onion, burdock, white radish, turnip, bok choy (Chinese chard) and gai lum (Chinese broccoli) appear to have promise. A successful field day was held in April.

HYDROPONICS

Investigations on crop shading and nutrient solution management began in the newly constructed hydroponic lettuce unit at Alstonville.

Procedures were developed to enable growers to supply 'roots on' lettuce to retail outlets. The lettuce are displayed with the roots immersed in water thus maintaining quality and enhancing shelf life.

ORNAMENTAL CROPS

The value of the nursery industry in NSW in 1988 was approximately $120 million. Registrations of nurserymen (3800) and resellers (3200) under the Horticultural Stock and Nurseries Act both rose slightly during the year. The NSW floriculture industry was estimated to be worth $50 million in 1988. Advisory programs aimed at increasing the supply of high quality cut flowers are proving successful as more and more growers change to undercover production and adopt improved postharvest techniques.

CROP IMPROVEMENT

Provisional Plant Variety Rights were granted for three *Lechenaultia* hybrids which are being trialled for commercial production.

Arrangements were made for the commercial development of nine cultivars of Geraldton wax (*Chamelaucium* sp.) suitable for cut flower production and bred at HRAS, Gosford.

PROTECTION SERVICES

A series of grower meetings, field days and other activities was held on the identification of weeds, pests and diseases, particularly in relation to the use of pesticides.

New cultivars of Geraldton wax (*Chamelaucium uncinatum*), have been bred at Gosford Horticultural Research and Advisory Station for cut flower production.

Twospotted mite (*Tetranychus urticae*) continues to be the most serious pest problem for flower growers, particularly with the development of miticide resistance. Research and advisory programs are under way to establish integrated control programs that minimise the use of chemicals.

An outbreak of *Glomerella* disease in cymbidium orchids proved difficult to control because of latent infections which were not eliminated by systemic fungicides. Bordeaux mixture gave effective control but, as this compound cannot be used during flowering, testing of other fungicides is continuing.

Carnation growers are experiencing problems owing to inadequate testing of some varieties and the supply of cuttings being infected with a severe strain of bacterial leaf and flower spot. The most severe losses occurred on the far North Coast where the area of hydroponic cut flower growing has markedly increased in recent years. Growers were advised on remedying the problems.

GARDEN ADVISORY SERVICE

The Garden Advisory Service answered more than 20 000 telephone, personal and mail inquiries from home gardeners and continued to give advice to schools, councils, nurseries, landscapers and horticultural associations.

Officers again answered gardening questions for the public at the Royal Botanic Gardens' annual 'Spring in the Gardens', Carnivale, the Royal Easter Show and the Australian Springtime Flora Festival.

PLANT QUARANTINE & EXPORT SERVICES

Interceptions of exotic insects and other organisms.

Exotic insects and other organisms	No. of interceptions
Fruit flies (Tephritidae)	2
Giant African snail	10
Other exotic snails and slugs	20
Bean thrips (*Caliothrips fasciatus*)	30
Navel orange worm	4
Siricidae woodwasps	17
Carpenter ant	7
Little fire ant	1

COMMONWEALTH FUNCTIONS

NSW Agriculture & Fisheries administers both Commonwealth and State Acts. An annual budget of $6.5 million is provided by the Commonwealth to administer the Quarantine Act 1908 and the Export Control Act 1982. Ten State Acts are also administered, including the Plant Diseases Act, the Horticultural Stock and Nurseries Act and the Seeds Act.

There are 160 agricultural inspectors employed by NSW Agriculture & Fisheries; of these, 110 operate under the Commonwealth Acts and the remainder under the State Acts.

Agricultural quarantine. The quarantine service is responsible for surveillance of all imported goods (including plant, machinery and cars) and entry of passengers travelling by sea and air. The increase in tourism and some imported goods in the last year has meant a considerable increase in quarantine surveillance. A total of 17 604 passenger and military flights were serviced, carrying a total of 2 537 144 persons. This represents a net 30 per cent increase in flights and a 15 per cent increase in passengers on last year. The building industry boom saw a total of 840 058 m^3 of timber imported, a 53 per cent increase on last year. Whilst quarantine seizures rose as a result of this increased movement of traffic and timber, the ratio was similar to last year.

Quarantine activities 1988–89.

Activity	Quantity
Passenger and crew clearance	
Air	2 537 144
Sea	58 615
No. of flights cleared	17 604
No. of vessels cleared	62
Quarantine seizures from passengers	23 129
Containers	
No. cleared	249 667
No. impeded for quarantine	76 986
No. requiring fumigation	3 971
Timber	
Quantity imported m^3	840 058
Insect infestations detected	531
Quantity fumigated m^3	27 345
Nursery stock	
No. of consignments inspected	262
No. sent to quarantine station for indexing	40

In providing the quarantine services, 68 410 import permits were issued for which a total of $3 141 755 in fees was charged. Charges are based on 60 per cent cost recovery. There were 86 completed prosecutions involving agricultural products, resulting in the imposition of $74 228 in fines.

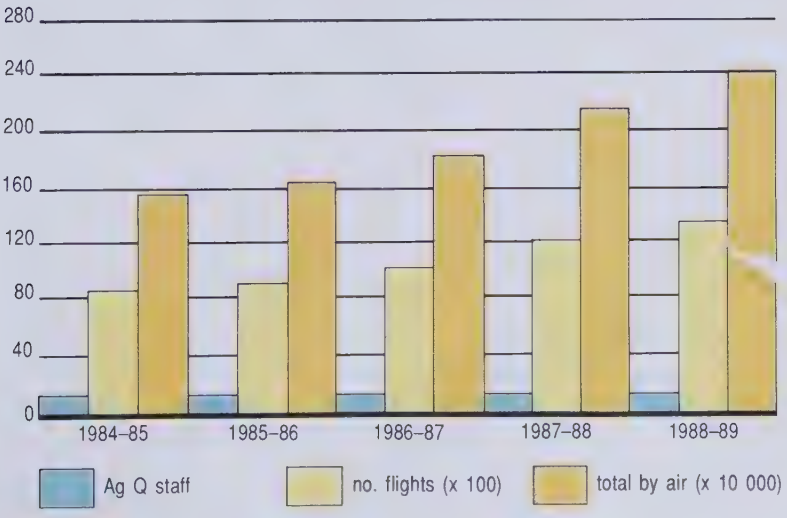
Quarantine policy statement. The Australian Government released a policy statement on quarantine, *Australian Quarantine Looking to the Future*. This was a result of the Lindsay Review into the Australian quarantine service and sets out the action the Australian Quarantine and Inspection Service will be taking as a result of the review. One of the major recommendations is the formation of a single quarantine service in Australia by the amalgamation of general quarantine with agricultural quarantine. Implementation of this recommendation has begun in NSW. For NSW Agriculture & Fisheries it will mean assuming responsibility for an extra 39 general quarantine staff and associated human health matters.

Exports. The issue of phytosanitary certificates under the International Plant Protection Convention is a necessary function in export. A total of 7968 certificates for plants, grains, field crops and other plant products were issued in NSW.

In 1988–89 new Commonwealth Fresh Fruit and Vegetable Orders were introduced to cover the export of all fresh fruit and vegetables from Australia. The Orders introduced new standards for product quality, packaging and trade description. There are now 27 fresh fruit and vegetable products with individual quality standards and postharvest treatment specifications.

New inspection procedures were introduced in NSW in July 1988 and all packers and exporters operate under a product monitoring scheme. This provides for three levels of inspection depending upon the performance of the exporter.

Increase in activity at Kingsford-Smith Airport, 1984–85 to 1988–89



Activities by agricultural inspectors

Orchards	10 275
Fruit Shops	4 017
Grain storages	706
Nurseries	2 283
Nursery resellers	1 704
Home gardens	22 439
Number of notices issued	1 085
Number of detention notices at markets	2 886
Number of castaway certificates for unsound produce	3 851
Number of prosecutions completed	8

STATE FUNCTIONS

Queensland fruit fly. An extensive outbreak of Queensland fruit fly (*Dacus tryoni*) occurred in the Murrumbidgee Irrigation Area during January. Area freedom status for this pest was lost, placing major restrictions on interstate and export trade. NSW Agriculture & Fisheries instituted a major eradication program. A Ministerial Notification was gazetted under the Plant Diseases Act requiring all landowners to remove all fruit fly host material by 30 April and to apply four autumn and six spring bait sprays. The Department allocated $600 000 in additional funds to the program for free chemical supply to growers and location of six additional staff in the area for six months to carry out detection work and to ensure that the Ministerial Notification is follwed.

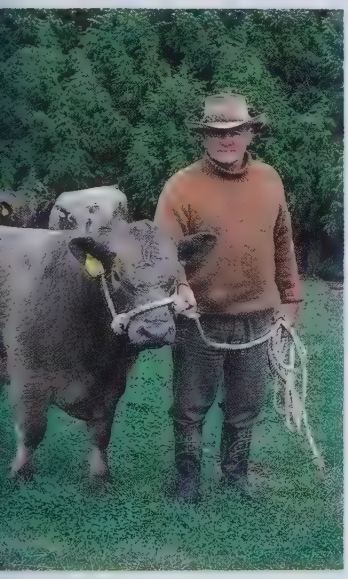
European wasp. The past 12 months have seen the commercial pest control industry take a more prominent role in the destruction of European wasp (*Vespula germanica*) nests. The mild wet summer has not favoured wasp activity and this has facilitated the transition.

The European wasp unit, based at BCRI, Rydalmere, investigated 992 reports of European wasp activity which posed a risk to public health. This resulted in the destruction of 401 nests in the Sydney metropolitan and surrounding areas.

Argentine ants. The total area infested with Argentine ants (*Iridomyrmex humilis*) increased significantly over the past 12 months. There are now nine infested sites in Sydney and the South Coast covering a total of 112 hectares. Of most concern is an infestation of approximately 12 hectares at Botany which is now within 200 metres of the Port Botany container terminal.

Bunchy top of bananas. The incidence of this disease in the Tweed and Brunswick districts of far north NSW is of concern with 6002 infected plants detected in 1988–89, an increase of 40 per cent on 1987–88. An additional bunchy top detection gang was recruited during the year and stricter destruction measures are expected to limit the spread of the infection.

BEEF CATTLE



The Murray Grey remains one of the most sought-after breeds for the live feeder steer export market to Japan.

Bone-out competitions are providing excellent information to producers on how much saleable meat their cattle produce.

MURRAY GREYS TO JAPAN

The Murray Grey project was finalised and provided valuable information to the beef industry regarding specifications for export of live feeder cattle to Japan.

A producer tour of Japan, led by a departmental officer, assessed the Japanese beef industry and the implications of market deregulation for the Australian beef cattle industry. The subsequent departmental report was well received by industry.

MUSCLE SCORE & CARCASE YIELD

This project highlighted the relationship between live animal muscle score and yield of saleable meat in domestic trade cattle. It has been demonstrated for the first time in Australia that saleable meat yield is related to a live animal muscle score. Previous systems have been compounded by fat cover.

Carcase dressing percentage and yield of saleable meat cuts increased significantly with muscle score. At the time of the study each increment in muscle score was worth $57 of extra meat for a 370 kg steer. These results reinforce the credibility of the muscle score used in Livestock Market Reporting and the AUS-MEAT livestock language.

STEER & CARCASE SHOWS

The value of steer and carcase shows and competitions was enhanced with the introduction of boneouts and measures of meat yield, designed to inform producers on market specifications and give a commercial meaning to competitions. This has added greatly to the extension of meat technology to producers, buyers and processors.

BREEDING

Twelve years' research on divergent selection of beef cattle lines for adjusted yearling growth rate has resulted in a 30 per cent difference between high and low lines, a difference that would have taken 25 to 30 years to achieve by conventional within-herd selection.

The weights of mature cows are also markedly different between high and low lines, the differences being greater when the cows graze higher levels of nutrition. Experiments designed to compare the efficiency of cow/calf units from each line suggest that cows and calves from the high line are marginally more efficient in converting food to bodyweight.

Breedplan. This program is being applied to 960 herds, an increase of 30 per cent in 12 months.

Highly successful studies continue to provide valuable information for the development of breeding programs. Research studies with crossbred cattle have shown that production from first cross Brahman x Hereford females is superior to that from second cross *Bos indicus* females or straightbred Hereford cows.

The muscle score project established the significant contribution that live animal muscle score can make in the domestic cattle trading system.

GENETIC DISEASES

Departmental research has developed techniques to allow detection of carriers of genetic diseases by demonstrating associated biochemical abnormalities. Carriers are clinically normal animals that carry a defective gene. The implementation of these tests is leading to the successful control of, and will eventually eradicate, alpha-mannosidosis from Angus and Murray Grey cattle in Australia by removing the carrier animals from bull-producing herds.

Recent developments in molecular biology have led to new methods of detection of carriers of genetic diseases. A particular technique known as the polymerase chain reaction (PCR) test will shortly be employed as a means of detecting carriers of the lethal inherited defect citrullinaemia in Australian Holstein-Friesian cattle. Citrullinaemia-affected calves die in the first week of life owing to failure in the metabolism of ammonia. Development of the PCR test has been made possible by the collaboration of departmental researchers with medical researchers studying citrullinaemia in children in Houston, Texas.

ARBOVIRUS MONITORING PROGRAM

The arboviruses of greatest significance to industry are akabane, aino, ephemeral fever and bluetongue.

The aims of the arbovirus monitoring program are:

- to monitor the spread of vector-borne viruses capable of causing disease in sheep, cattle and goats in NSW
- to determine the seasonal variation in transmission of these viruses
- to establish patterns of endemic arbovirus transmission; strategic plans can then be developed for the control of disease outbreaks due to recently introduced or exotic viruses such as virulent bluetongue serotypes or Rift Valley fever
- to define arbovirus-free zones to permit access to new export markets.

Preliminary results of monitoring during the 1988–89 season indicate a further expansion of bluetongue virus in NSW. Early akabane transmission has also occurred. Early warnings were issued to producers to enable stock to be moved at times that would minimise the impact of the virus. Results from this program indicate that it may soon be possible to develop an early warning system that will allow more efficient use of vaccines.

INDUSTRY LIAISON

The Department assisted industry in the preparation of a submission seeking exemption from the 'prescribed interest' provisions of the Companies Code in NSW for the sale of shares in embryos and live animals. The submission is now before the National Companies and Securities Commissions and NSW Corporate Affairs Commission.

ESTABLISHMENT OF FEEDLOT ADVISORY UNIT

As a service to the growing feedlot industry a Feedlot Advisory Unit has been established. It will assist with all aspects of production and management and liaise between government departments and private organisations.

LOSSES IN THE BEEF PRODUCTION CHAIN

A major program was launched in conjunction with the Meat Industry Authority to highlight losses from injury, bruising and dark cutting meat.

A new test has been developed to detect carriers of the lethal inherited defect citrullinaemia. Affected calves die in their first week.

IMPROVED MARKETING METHODS FOR SHEEP & CATTLE

An inter-regional program involving both sheep and cattle concluded in 1988. Significant contributions were made to CALM and AUS-MEAT.

INTERNAL PARASITES

Following the success of strategic parasite control programs in the sheep industry, regional guidelines were formulated for strategic drenching of cattle. The program, known as Cattleplan, aims to provide cattle producers with sound advice on effective drenching procedures and protection of cattle from internal parasites, as well as leading to more efficient and economic use of anthelmintics.

BRUCELLOSIS

NSW is a Free Area of Brucellosis. Since it attained this status on 1 January 1988 there has been one confirmed breakdown in which 168 head of cattle were destocked from the three properties to ensure that no residual infection remained. Over 3000 head of cattle that had come in contact with these animals were tested.

The Department has continued to monitor cattle for the disease at all major abattoirs. Traceback of reactors and suspected cases has been carried out to identify the property of origin and to enable more thorough testing of the other cattle on the property.

During the year the Regional Veterinary Laboratories tested approximately 600 000 samples for brucellosis.

TUBERCULOSIS

NSW was declared an Impending Free Area of Tuberculosis on 1 January 1988. Since this time there have been six breakdowns. Extensive tracing to find the source of infection has involved tuberculosis testing of all herds that may have had contact with the infected cattle. Over 700 head have been consigned to slaughter to ensure that the tuberculosis does not spread. Abattoir monitoring has played a key role in the initial detection of all tuberculosis breakdowns.

CATTLE TICK

Control of this serious cattle parasite continues to improve in the Cattle Tick Quarantine Area (TQA) of the far North Coast. The North Tabulam area was released from the TQA on 28 November 1988 and preparations have begun for the release of the Legume area. Only six infested properties were found in 1988 and only one for the first six months of 1989.

Outside the Tick Quarantine Area there were three outbreaks. In two of these, both of which occurred early in 1988, ticks have been eradicated. The third outbreak has been most serious. It occurred at Yeoval in the Central West as a result of the illegal introduction of nine calves from the Tick Area in Queensland in October 1988. As a result of the death of 14 cattle from tick fever, 67 properties at Yeoval and seven others at Merriwa, Breeza, Dubbo and Gilgandra were placed under quarantine until April 1990. Whilst it is expected that the ticks will not survive the winter at Yeoval, precautions have been taken to limit any further spread and to detect any residual infestation next spring and summer.

Board of Tick Control. New legislation relating to Board membership was passed and six stockowner representatives were elected, one for each region in the Tick Quarantine Area. A new Board was constituted and had its first meeting on 6 March 1989.

DEER

The Department is providing guidance to the industry in the establishment of Codes of Practice and legal means of deer identification.

Deer farming displays were organised at Mudgee Small Farms Field Days and the Australian National Field Days at Orange, where technical and promotional material was distributed.

DAIRY CATTLE

A major event of the year was the 'Fresh Directions Dairy Convention 88' jointly organised by NSW Agriculture & Fisheries, the Queensland Department of Primary Industries, dairy authorities and dairy farmer organisations.

INDUSTRY LIAISON

The formation of the NSW Agriculture & Fisheries Dairy Industry Liaison Group was a significant development during

Milk-n-omics analyses farm economic and production information for sustainable dairy farming systems.

the year. The main objectives of this group are to improve communications between the relevant industry organisations and to facilitate and coordinate better planning, funding, operation and evaluation of research and advisory programs for the dairy sector.

PESTIVIRUS

Bovine pestivirus causes severe losses in cattle.

The pestivirus research project supported by the Dairy Research Council is coordinated at Glenfield. It has three major aims. These are to develop better diagnostic tests, to investigate the effects of the virus on reproduction and to measure its spread and effects in dairy herds in the field.

The standard serological test for bovine pestivirus in NSW is the gel diffusion precipitin test (GDPT). Research at Glenfield Laboratory is developing what promise to be better tests. At this early stage the enzyme-linked immunosorbent assay (ELISA) appears to be more sensitive than the GDPT in detecting long-standing antibody in adult cattle. Research at Glenfield has also developed monoclonal antibodies to use in a rapid test to detect viral antigens in blood and tissue samples.

The effects of pestivirus in early pregnancy have been investigated. Pregnancy rates at 11 weeks for heifers infected shortly before or after insemination were found to be significantly lower than for immune controls.

The Glenfield research team also demonstrated that bulls with transient viraemias excrete pestivirus in their semen. Virus was found in half the semen collections made from four recently infected bulls. The survival of the virus in the semen after freezing and the results of subsequent inseminations are yet to be investigated.

Pestivirus infection is being monitored in 46 Hunter Valley dairy herds.

MASTITIS

NSW Agriculture & Fisheries provides a mastitis diagnostic and advisory service for dairy farmers. The Mastitis Advisory Program aims to reduce the amount of milk production lost by the NSW dairy industry through mastitis and to improve the quality of milk produced. Field days and seminars on mastitis control have been conducted throughout the State as part of the program.

MILK-N-NOMICS

This financial and farm management program has 130 farmers participating in the MILK COST component which analyses the variable costs of producing milk. The recently released FEED PLAN component, which provides information on feed requirements and projected farm needs, has been adopted by 46 farmers in the Kyogle district and others in the Lower Hunter and Manning areas.

HERD IMPROVEMENT

The Department's integrated herd improvement program continued. The herd recording component, which generated 96 per cent of its own funds, served 925 farmers. In these herds cows averaged 4615 L of milk, 143 kg of protein and 178 kg of fat. Somatic cell counting for individual cows was offered as part of the herd recording service for the first time.

Preliminary results were obtained from the unique Holstein herd selected on production. Cows in the 'high' line produced 40 per cent more milk fat and 25 per cent more milk volume than cows in the 'low' line when grazing the same pastures.

LACTATION STUDY

A full lactation study was carried out to measure the effects of adding Avotan® to dairy concentrates. The altered rumen fermentation resulted in the production of 5 per cent more milk with no deleterious change in milk composition.

SHEEP & WOOL

LEAN LAMB PROGRAM

The Minister for Agriculture and Rural Affairs launched the Lean Lamb program, which integrates the breeding, management, production, economic and marketing aspects of lamb production.

MEATSHEEP TESTING SERVICE (MTS)

Testing through the MTS increased by 17 per cent for the year, with approximately half of NSW prime lamb sires now being measured through this service. South Australia and Tasmania have established testing services based on the MTS and Victoria and Queensland are planning to do the same.

Training courses were provided for Grazcos staff who will operate a commercial LAMBPLAN testing service in all states of Australia. LAMBPLAN is a national program based largely on the Department's MTS.

An analysis by research staff of data from meat breed sires resulted in the incorporation of new adjustment values for birth type and rearing effects in the MTS and, consequently, LAMBPLAN.

CRYPTORCHID PRODUCTION

The Department has strongly supported the development of ram lamb and cryptorchid production. Comprehensive guidelines have been developed for producers and an increasing number of ram lamb contracts have been taken on by NSW producers. The number of cryptorchids marketed in NSW last year is estimated at 200 000, a dramatic increase on the almost negligible numbers two years ago.

WORMKILL

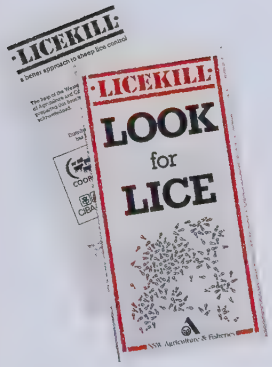
Cost savings due to the Wormkill program are estimated to be around $4 to $5 million a year. The program has been adopted by at least 85 per cent of sheep producers in the New England area. The Department and Pastures Protection Boards continue to provide a backup service for the program, undertaking parasitological investigations as required.

DRENCHPLAN

Drenchplan is in its third year in central and southern NSW with an estimated adoption rate of 50 per cent. This is a slight increase on the previous 12 months and is an excellent result considering that worms in sheep are not the dramatic problem in winter rainfall areas that they are in the New England district.

The acceptance of the Drenchplan recommendation by graziers in their worm control programs has contributed to the reduction of anthelmintic resistance problems in the area during the last 12 months.

LICEKILL



The Licekill program has led to a reduction in the prevalence of lice-infested flocks.

Graziers are now seeking and accepting advice on lice control—over 4000 inquiries were received. This personal contact, which did not occur when regulatory controls were in place, has allowed the Department to investigate the problems associated with lice control.

Recent surveys indicate a reduction in the prevalence of lice-infested flocks. Failure to control existing infestations has been found to be due to pyrethroid resistance, poor management practices or failure to apply insecticide to all sheep correctly.

There is an increasing interest in overcoming pyrethroid resistance and prolonging the life of this group of chemicals. Research funded by the Wool Research Trust Fund has demonstrated the widespread occurrence of pyrethroid resistance and has led to the development of a field kit to test for evidence of resistance. Laboratory and field work are continuing on developing strategies to control resistance and to improve application techniques for lousicides.

OVINE BRUCELLOSIS ACCREDITED FREE FLOCK SCHEME

This scheme was introduced in 1981 to provide a list of ram flocks in NSW which are free from ovine brucellosis. Commercial sheep producers can now confidently purchase rams from accredited flocks knowing that they are free of the disease. The scheme has expanded sufficiently to allow most producers to buy brucellosis-free rams with the production characteristics they desire.

The scheme is a cooperative effort between breed societies, private veterinary practitioners and NSW Agriculture & Fisheries. Support from the sheep industry and veterinary practitioners has continued at a very high level during the year. The number of sheep flocks accredited in the scheme has increased from 1105 to 1169. The increase was due to the continued policy of agricultural societies allowing only flocks accredited under the scheme to exhibit at shows as well as the Department's promotion of the scheme.

WOOL PRODUCTION

Woolplan. The development and success of the Department's genetic improvement program in NSW has led the way for the establishment of the national performance recording scheme Woolplan. Since its release early in the year, further development of Woolplan has resulted in additional selection index options and breeding values based on progeny performance.

Flockplan, a commercial ewe selection service combining visual and objective criteria, was developed as a cooperative venture between Dalgetys and the Department. In its first year of operation 180 000 maiden ewes were tested.

Genetic improvement. The Fleece Measurement Laboratory at Trangie further increased throughput to over 75 000 fleece samples for 420 clients, including samples from interstate. Approximately three quarters of Merino rams sold in NSW are tested by the Trangie service.

The use of objective data in ram selling continued to increase, with over 50 on-property auction sales based on Trangie measurements. Performance data were included in the major ram sales at Dubbo, Armidale, Goulburn and Cooma.

Wether competitions have been updated with the development of a technique for pooling information across competitions that allows differences between bloodlines and strains to be estimated.

A project funded by the AWC has provided valuable information on current selection practices and management limitations on Merino studs. It has received excellent support from ram breeders in NSW; 10 Merino studs are collaborating in the establishment of demonstration units.

Plasma glutathione levels are significantly different between sheep selected for or against fleece weight, regardless of nutritional level. The finding shows potential as the basis of a physiological marker method for identifying sheep with high wool-producing potential.

NUTRITION

The traditional and expensive supplements fed to sheep to offset perceived deficiencies in the pasture often result in no benefits over unsupplemented controls.

Pasture/Animal Assessment Project. Fourteen sites are being monitored on both native and improved pastures for pasture and livestock performance to help advisory officers and producers improve their pasture assessment skills. A 10 per cent improvement in pasture use has the potential to increase the gross value of production of the sheep industry in NSW by $150 million annually.

MANAGEMENT

Increased capital investment on sheep yards and shearing sheds has meant a high demand for assistance from the Department. Advice was given on the construction of 288 sheep yards and 101 shearing sheds (317 shearing stands), worth approximately $5.25 million. The Department also assisted three local government councils who are upgrading municipal saleyards.

A major evaluation of jetting techniques for blowfly control was conducted at Trangie on 11 different jetting devices. Depth of chemical penetration and pattern of application were measured and used to predict periods of protection.

Results of an extensive mulesing and tail length survey conducted through saleyards across the State (involving 542 000 Merinos) confirmed the impact of the Department's programs in this area. Almost 90 per cent of Merino sheep are mulesed and a high proportion of producers follow recommendations for longer tail length.

Training exercises were conducted for industry personnel on ram breeding, sheep handling and the use of artificial insemination, and requests for more courses were received.

THE NSW FOOTROT STRATEGIC PLAN

Footrot costs the NSW sheep industry at least $50 million a year in production losses and costs of treatment. The Plan was prepared after extensive consultation with sheep industry groups following requests for a greater level of footrot control in NSW and, as such, is largely industry-funded. A steering committee, consisting of representatives from various industry groups and the Department, has been formed to oversee the implementation of the Plan.

The Plan was launched on the Sky Channel network by the Minister for Agriculture and Rural Affairs, Mr Ian Armstrong. Meetings were organised across NSW and in Victoria and Queensland for producers and agricultural service industry personnel. The launch was a joint venture between commercial and industry groups, Pastures Protection Boards and the Department. It provided a high profile for the Plan and clearly demonstrated the Department's competence to produce a high quality television program.

There are two basic strategies proposed in the Plan. The first is to reduce the incidence of footrot in high prevalence Pastures Protection districts. The second is to declare Pastures Protection districts with a low prevalence as footrot protected areas and impose regulatory control there.

Cast and crew at the rehearsal of the footrot launch.

To assist in reducing the footrot incidence in high prevalence areas, sheep owners have been encouraged to form themselves into local voluntary eradication groups. Sixteen have been formed.

The Pastures Protection Boards of Yass, Young, Carcoar, Goulburn, Deniliquin and Gundagai have employed Footrot Advisory Officers to assist with the implementation of the Strategic Plan in those districts.

ANTHRAX

Outbreaks of anthrax, a highly contagious disease affecting mainly sheep and cattle, occur annually in the anthrax belt. This area runs through the NSW sheep/wheat area from Queensland to Victoria. Most outbreaks are reported and quickly brought under control by vaccination, quarantine and (sometimes) treatment.

In November, a serious outbreak occurred in sheep in the Central West. Anthrax was diagnosed but not reported. Sheep from the infected property were later sold and the disease spread to pigs. Deaths of infected sheep and pigs prompted the further destruction of animals, the cleaning and decontamination of the saleyards and piggery and the condemnation of 30 tonnes of boned mutton. No human cases resulted. Those responsible have been charged under the Stock Diseases Act.

GOATS

The domesticated feral goat is used extensively for departmental research projects.

GOAT BREEDING

Research has defined the nature of seasonal breeding in both male and female goats. The reproductive systems of both are very responsive to environmental stimuli such as daylength and nutrition. Other investigations continue to explore the nature of the natural synchronisation of oestrus in the female by the introduction of the male (the 'buck effect').

Studies of fleece growth in down-bearing goats suggest that there may be five classes of animals differing in cashmere growth cycles.

PRODUCT QUALITY AND MARKETING

The Department collaborated with the Australian Cashmere Growers' Association and the Australian Cashmere Marketing Corporation to develop and conduct cashmere classing workshops. A course was conducted for TAFE representatives and assistance was provided to develop job profiles, skills analysis, teacher accreditation and a national core syllabus.

FOOTROT

The NSW Footrot Strategic Plan aims to reduce the incidence of footrot in goats as well as sheep.

The incidence of footrot in goats is high in coastal and tableland areas and a large extension campaign, in line with the Footrot Strategic Plan, is advising goat owners on eradication methods.

WORM CONTROL

Anthelmintic resistance continues to be a problem in the goat industry, especially in high rainfall areas. The Department continues to promote strategic drenching programs for goats in order to minimise the emergence of resistance and to improve parasite control.

GOAT MILK

The goat milk industry now has a 'quality milk' assurance scheme for goat milk. Various industry and government bodies cooperated to establish the scheme. The regulations allow only 'accredited' dairies to sell raw goat's milk. NSW Agriculture & Fisheries played a major role in preparing the guidelines and coordinating activities.

PIGS

The Pig Herd Improvement Scheme was launched for major breeders and commercial producers.

During the year over 300 boars were tested at the Boar Performance Test Station and demand for above average animals continued at a high level. There has been a significant improvement in average daily gain and leanness in boars tested over the last three years.

ENZOOTIC PNEUMONIA

This chronic respiratory disease of pigs causes up to 13 per cent reduction in growth rate and is estimated to cost the industry $19 million annually; it is currently controlled by antibiotics. Initial trials of a vaccine developed at the Department's Central Veterinary Laboratory, Glenfield, are promising. The Department signed a joint venture agreement with the animal health company Auspharm International and was presented with $71 000 to begin a two-year project to develop the vaccine. An ELISA test to detect the disease, the presence of which may be masked by antibiotic usage, has also been developed at Glenfield.

ATROPHIC RHINITIS (AR)

Surveys undertaken in 1987 were repeated in 1988. Results confirmed that AR is not a widespread problem in NSW. Only four per cent of a random sample of breeding herds proved positive in the 1988 survey. Of these 10 herds, most had either controlled the disease with medication or were finding that clinical signs were abating over time. (Overseas experience indicates that AR is most severe when first introduced.) Nearly all cases of AR showing obvious clinical signs can be linked to a large South Australian piggery, where it is suspected that diseased stock were introduced from overseas.

Because of the AR survey, producers are now more aware of the need to consider the disease status of herds from which they intend to purchase pigs.

NUTRITION RESEARCH

Considerable savings can be made by reducing dietary phosphorus. Appropriate changes have been made to least-cost diet formulation programs.

There is no advantage in using monosodium glutumate as a flavour enhancer in traditional wheat-based creep diets. There is no advantage in citric acid supplementation of creep diets either.

Tocal Boar Test Station.

Pigs fed balanced diets grow better than those offered a choice between cereal grain and protein concentrate.

Biotin supplementation of sows failed to show any marked benefit in reproductive performance or productivity.

Increased carcase fatness of grower pigs in summer is probably due to reduction in maintenance energy requirement in hot weather rather than a decrease in nitrogen retention.

POULTRY

Information generated by the layer farm management program was used extensively during an inquiry into the egg industry commissioned by the Minister for Agriculture and Rural Affairs.

The 34th Random Sample Layer Test was completed. On average, commercial strains of layers produced219 grams more

egg per hen housed and ate almost one kilogram less feed when compared with the previous test. This increase in efficiency is valued at approximately three cents per dozen eggs produced, or $2.1 million for the industry.

LAYER NUTRITION & FEEDING PRACTICES

A computerised nutritional model was developed and evaluated. Use of the model saved 3.7 cents per dozen eggs compared with the conventional least-cost methods of feed formulation. The technique is now used to formulate commercial poultry diets. It is the first such model to be used for this purpose in Australia.

POULTRY MEAT PRODUCTION

The Department provided the major contribution to the revision of guidelines and cost of production models used by the Poultry Meat Industry Committee to determine the growing fee paid by processors to their contract chicken growers. Criteria were developed for free-range poultry meat production.

POULTRY HEALTH

Following the survey of poultry producers carried out in February 1988, five poultry health courses were held around NSW to address the management problems highlighted by the survey. Detailed proceedings were produced.

One objective of the program is to encourage egg farmers to house their birds in single-age-group sheds and farms. The ACIL report into the egg industry recommended that the quota age should be reduced to 19 weeks and the industry has endorsed this recommendation. If this is implemented, one impediment to increasing the number of single-age sheds will be eliminated.

INFECTIOUS LARYNGOTRACHEITIS (ILT)

During the outbreak of ILT in 1986 many thousands of meat chickens died because the vaccine used to protect them was too severe. The industry needed, however, to use these vaccines to prevent an even higher mortality which would have resulted from infection with the wild virus. Industry-funded research at Seven Hills and Glenfield has identified a milder strain which still gives immunity.

AVIAN VACCINE MONITORING

The commercial poultry industry depends on vaccines to control disease. These vaccines must be produced in eggs from flocks free of all poultry diseases. There are only two vaccine producers in Australia. During the year one of the manufacturer's SPF flocks became infected with two diseases. The Department was closely involved in careful negotiations to ensure that vaccines produced in eggs from this flock were not a threat to the industry, at the same time ensuring that the industry was not left without vaccines.

EXPORT TESTING

The past 12 months have seen an increase in the export of avian genetic material to New Zealand and the USA. This activity has enabled the Poultry Section of the Central Veterinary Laboratory at Glenfield to be involved in testing sera and developing new and improved diagnostic tests.

BEES

Pollination of lucerne by honey bees can make significant improvements to yields.

The beekeeping display at Mudgee Small Farms Field Day attracted 10 000 visitors. Approximately 200 people attended the Annual Beekeepers' Field Day at Paterson.

A unique correspondence course will be offered through C. B. Alexander Agricultural College as an introduction to commercial beekeeping. The course will be available Australia-wide and has corporate sponsorship from Federation Insurance.

Outstanding stock from the genetic improvement program were auctioned with the top queen selling for $350, compared with the top price in 1988 of $185 and 1987 of $170.

Studies on the use of bees as pollination agents of lucerne showed that pod set, seeds per pod and final yield decreased with a decrease in the pollination period. The body protein level of the bees dropped quickly where lucerne was a major component of pollen collected.

A ban was imposed on the importation of honey from countries that are known to have the fungal disease chalkbrood in their hive population.

REGULATORY PROGRAMS

BEEKEEPER REGISTRATIONS

Registered apiarists—distribution of hives on apiary size.

No. hives/ Registration	Apiarists	Hives
up to 39	3 521	27 831
40–199	661	55 106
200–500	319	91 558
500	137	99 482
TOTAL	4 638	273 977

The number of beekeepers registered at 30 June 1989 under the Apiaries Act 1985 was 4638 with 273 977 hives.

The Beekeepers' Registration System was extended to allow the recording of bee disease outbreaks and compensation payments. During the year 1368 hives were infected with American foul brood disease with $13 122 being paid in compensation to beekeepers and 1061 units irradiated at a cost of $16 987. There was an increase in the number of units irradiated as this greatly reduces the cost of compensation and prevents the destruction of sound beekeeping equipment.

ANIMAL QUARANTINE

As the agent for the Commonwealth Department of Primary Industries and Energy, the Department implements animal quarantine policies within NSW and supervises the preparation of animals for export. It provides the operational and field services and is responsible for supervising the preparation of animals and liaison with importers and veterinarians.

Importation of pregnant mares from New Zealand was suspended owing to an outbreak of abortion caused by equine herpes virus.

The Animal Quarantine and Exports Branch of AQIS was advised in August that equine viral arteritis (EVA) may have been introduced into Australia through horses of US origin which had been imported via New Zealand since 1 January 1987. Because it was possible that some horses exported from the USA to New Zealand and later to Australia were positive to EVA, horses were retested.

Evidence has been gathered from serological surveys in Australia and New Zealand that EVA virus has been transmitted from stallions to mares, although there have been no reports of clinical disease. A survey requested by the horse industry to ascertain the true situation will need industry funding.

PASTURES PROTECTION BOARDS

The Department continued to work in close cooperation with the State's 57 Pastures Protection Boards on a wide range of issues. Some of the more important cooperative efforts completed included:

- a review of the concept of Pastures Protection Board minimum rates
- preparation of draft legislation relating to improved laws for travelling stock, new laws for the identification of large stock and various other Act amendments
- introduction of the footrot eradication campaign
- assistance to Boards in publicity displays at field days.

RESIDUES IN LIVESTOCK

An extensive inter-regional program successfully addressed the problem of chemical residues in beef. An advisory program was developed to assist industry in promoting the declaration procedures for beef not treated with hormonal growth promotants destined for the European Community market.

The State's residue monitoring program, which extended lot testing to domestic abattoirs in October 1988, accelerated property clearances and assisted in the identification of stock with significant residue levels being slaughtered through the domestic system. This program, plus export lot testing, had cleared 40 000 of 46 000 NSW properties tested up to May 1989.

Important to the assessment of the national and state violation rates was a special two-month residue survey in February and March 1989 by AQIS (see table over). The violation rate for NSW was 0.07 per cent which compared favourably with other States.

As a result of this survey the decision was taken to wind down the national program. Monitoring will now rely on an expanded National Residue Survey and testing of cattle from approximately 1000 NSW properties identified as warranting future monitoring.

State	Samples	Violations	% Violations
NSW	4 176	3	0.07
QLD	3 319	5	0.15
VIC	2 691	4	0.15
SA	3 135	2	0.06
WA	3 010	6	0.20
TOTAL	16 331	20	0.12

At the end of 1988 212 NSW properties were in detention for residues. This was an improvement of 23 per cent on the previous year.

Testing of wool for organochlorines (OCs) and arsenic by the Australian Wool Corporation was intensified during the year. The Department has the responsibility for field investigations following detection of OCs and arsenic in wool. Four properties were investigated during the year.

STOCK MEDICINES AND PESTICIDES

Agricultural and Veterinary Chemicals Act 1988. This Commonwealth Act took effect on 1 June 1989 and requires all new products, and new uses for existing products, to be cleared by the Australian Agricultural and Veterinary Chemicals Council, a body which includes a representative of each State. Legislation for control of possession and use under the Stock Foods and Medicines Act was drafted to complement the Act. Tighter restrictions on possession and use of stock medicines, along with substantial penalties, will help prevent harmful residues entering the food chain.

As a result of a review of application documentation five different pesticide application forms used for different categories of applications under the Pesticides and Allied Chemicals Act have been replaced by a single simplified form. This gives applicants more flexibility in presenting the required information without reducing the amount of information submitted for assessment.

Pesticide registrations. Details of the numbers and types of pesticide applications made under the Pesticides and Allied Chemicals Act or through the Commonwealth Technical Committee on Agricultural Chemicals are shown over.

Registration seminars were conducted in April 1989, providing company registration personnel with a comprehensive guide to product application, poison scheduling, resource material and changes in legislation.

Stock medicine registrations. One hundred and ninety-six new product applications were considered by the Stock Medicines Section in 1988–89. The Section also handled 1942 reregistrations.

The Stock Medicines Consultative Committee continued to be a valuable forum for specific policy issues. The Committee has been expanded to include representation by the NSW Farmers' Association and the Stock Feeds Association.

Category of application	Number received
New product	622
Additional label	469
Additional container	135
Formulation change and other registration correspondence	1580
Permit	486
Aircraft (Pesticide Applicator) licence	6
Pilot (Pesticide Rating) licence	41
Technical Committee on Agricultural Chemicals submissions	81
Technical grade active constituent	86

Stock foods. At 30 June 1989, 1503 products were registered by 188 companies. One third of these products are for pets or companion animals.

Negotiations were held with the Pet Food Manufacturers' Association of Australia for the development of a *Guide to Manufacturers*. It is no longer necessary for pet food manufacturers to register their products under the provision of the Stock Foods and Medicines Act 1940.

Pesticide inspections. During the past year pesticide inspectors visited 2260 manufacturers, wholesalers, retailers, users and pest control operators. They also carried out 45 investigations resulting from complaints and routine inspections. Seven prosecutions resulted, of which three related to misuse of pesticides and two to sale of pesticides.

Inspectors reported 41 unregistered pesticides for sale or in use during the year.

Stock medicine prosecutions. Two companies were prosecuted and found guilty of selling unregistered stock medicines.

STOCK BRANDS

Cabinet has given approval to transfer the administration of the Large Stock Brands Register from the Department to the 57 Pastures Protection Boards. During the year 1604 new registrations were issued and 433 transferred under the Registration of Stock Brands Act 1921.

A total of 4723 pig brands were registered at 30 June 1989 under the Swine Brand Register. Of these, 3907 are active, representing a total of 119 387 sows.

Swine brand registrations—distribution of production by herd size.

Herd size	Producers	Sows
0	825	0
1–9	2 102	7 997
10–19	692	8 618
20–49	663	19 312
50–200	388	34 920
201–500	29	10 610
500	24	37 930
TOTAL	4 723	119 387

EXOTIC ANIMAL DISEASES

The exotic animal disease exercises held in 1987–88 were reviewed. Recommendations on the restructuring of the *Exotic Animal Disease Emergencies Manual* and the control groups are to be implemented in 1989–90.

A working party reviewed the State's animal health emergency preparedness. The recommendations of this working party will assist the Division of Animal Health to formulate better training programs and communication systems for all people and organisations that will be involved in the event of an exotic animal disease outbreak.

VERTEBRATE PESTS

Strategic plans for vertebrate pest control are being developed by the Vertebrate Pest Control Advisory Committee. The Eastern Division wild dog control plans were implemented.

The 1080 concentration permitted in carrot baits was reduced from 0.03 to 0.02 per cent following extensive field trials showing comparable efficacy against rabbits at the lower dose. This has reduced the risk to non-target species.

Helicopter culling of feral pigs was carried out by a number of landholder groups and Pastures Protection Boards.

The anticoagulant warfarin was found to be particularly effective in controlling feral pigs, with reductions in numbers of over 90 per cent.

In a comparison of bait types as potential carriers for poisons used in controlling wild dogs, meat baits were shown to be three times as attractive to wild dogs as biscuits or specially compounded factory baits.

In high country near Kosciusko, feral pigs were found to be particularly mobile with home territories of 35 km^2 for males and 10 km^2 for females. In contrast, home ranges on the Central Tablelands are much smaller. The differences are related to food supplies and topography, and are relevant to the modification of control procedures.

ANIMAL SYSTEMS

The new Animal Systems Group (ASG) provides a computer technology resource for animal production staff. During the year the ASG:

- improved software used by the Meatsheep Testing Service and the goat wether trials
- developed DIETSPEC, a poultry diet specification program
- developed a staff information system and indexed all divisional paper files
- collaborated with CSIRO, the Victorian Department of Agriculture and Rural Affairs and a number of software developers in the development of computer models.

NATURAL DISASTER PREVENTION & RELIEF

No serious outbreaks of Australian plague locusts occurred during the year in NSW or adjoining States. However, owing to the favourable rains received in NSW, South Australia and Queensland during the autumn of 1989, the Department is preparing for a possible outbreak during 1989–90.

Expenditure on road transport subsidies for drought relief during the year was $1 971 432.

During April major flooding occurred on the far North Coast, the Central Western Plains near Nyngan and Brewarrina and the Mirrool Creek and Murrumbidgee River systems in the Riverina. NSW Agriculture & Fisheries worked with the State Emergency Services, the RAAF, local shire councils and other bodies to provide emergency assistance to move stranded livestock away from flooded areas and to carry fodder to the stock. NSW Agriculture & Fisheries spent $67 098 on road transport subsidies for flood relief and $83 050 on hay subsidies. Almost continuous wet weather from April to June caused losses to crops and damage to pastures and necessitated extensive hand-feeding, especially to dairy cattle in coastal and Hunter Valley areas.

ANIMAL WELFARE

ANIMAL HUSBANDRY

The promotion of sound animal welfare practices in animal husbandry is a principal animal welfare responsibility of the Department. Close liaison has been established with the Animal Welfare Division of the Department of Local Government which has legislative responsibility for animal welfare.

Codes of Practice in animal welfare have been developed in consultation with industry bodies for various livestock species and industries nationally and their adoption by livestock producers is being encouraged. Compliance with the recommendations in the codes will help to protect stockowners from allegations of cruelty under the Prevention of Cruelty to Animals Act 1979.

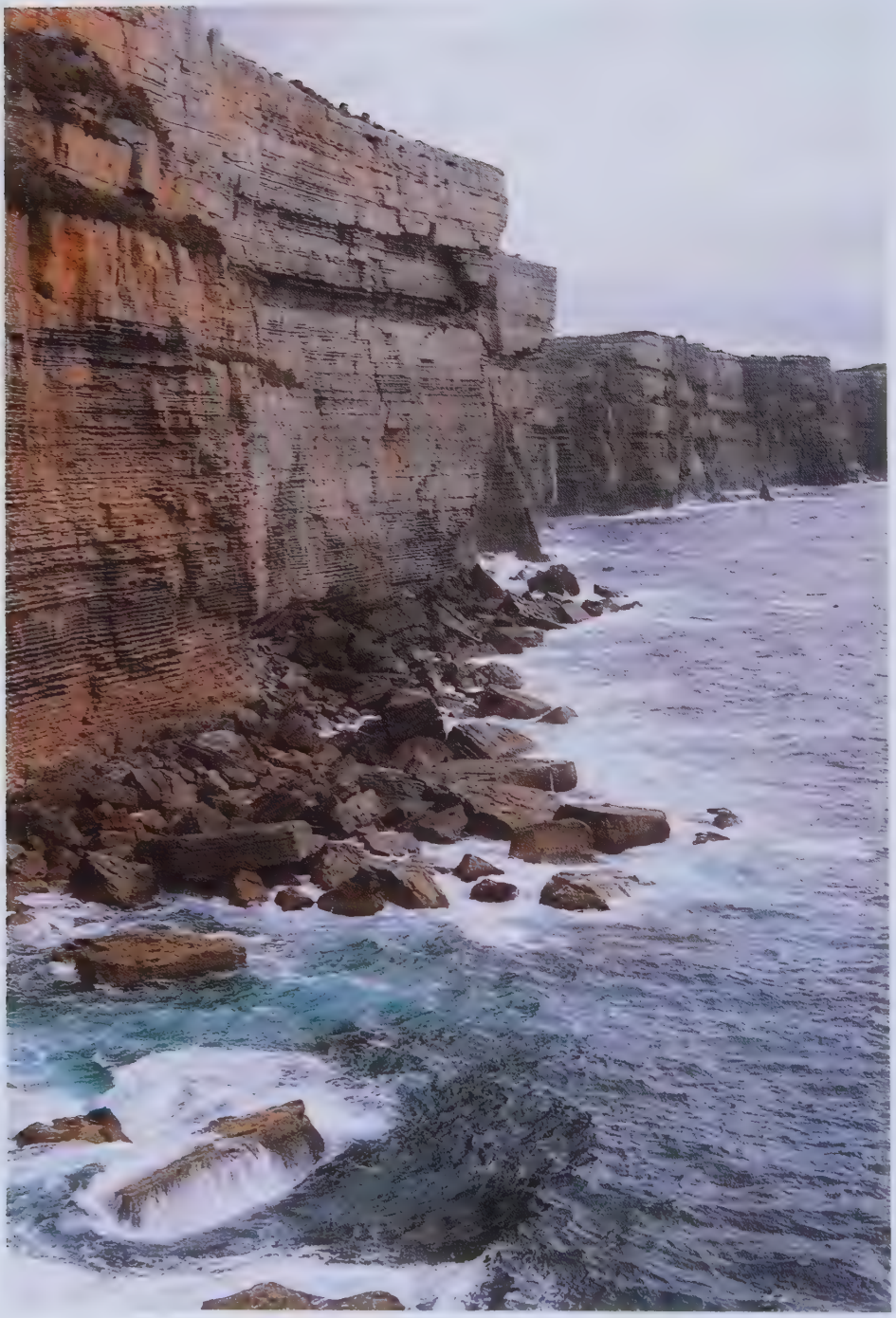
The Department made submissions to the Senate Select Committee inquiring into animal welfare in the sheep and poultry industries.

ANIMAL RESEARCH

In anticipation of the start of the Animal Research Act 1985 the Department has established Animal Experimentation Ethics Committees for all its animal research activities. These local committees examine every animal experimentation project involving the Department. Projects cannot begin until they have been approved by the committees. This ensures that all animal research is meaningful, uses minimum numbers of animals and safeguards their welfare.

Darcy McFadden, Northern Star

NSW Agriculture & Fisheries provided emergency assistance to carry fodder to stock stranded by major flooding on the far North Coast in April.



Rocky reef habitat occurs along the NSW coast; studies now under way are designed to assess its contribution to the NSW commercial and recreational fisheries

FISHERIES REGULATION & MANAGEMENT

The habitat where freshwater and saltwater merge is very vulnerable because of the many and varied pressures from development.

RESTRUCTURE OF DIVISION

Consultants Peat Marwick Hungerford reviewed the Division of Fisheries and recommended changes to the organisational and operational structure of the Division, particularly to strengthen fisheries management and policy development.

A new position of Principal Officer (Aquaculture) and four Special Fisheries Officers (Marine Inshore, Marine Offshore, Oysters and Recreation) were established and the position of Biologist (Habitat Management) was upgraded and reclassified as Special Fisheries Officer. Changes were also recommended for the Fisheries Research Institute, Cronulla, resulting in the creation of the position of Deputy Director and the deletion of three positions of Senior Biologist.

COMMERCIAL FISHING ADVISORY COUNCIL (CFAC)

In April 1989 Cabinet approved the establishment of a Commercial Fishing Advisory Council (CFAC) to act as the unified body representing all commercial fishermen in NSW.

The objectives of the council are to provide formal communication between industry and the Minister on policy and strategy and to enable workable regional liaison on local management issues.

As legislation for CFAC will not be in place until the end of 1989, the Minister convened an interim council which held its inaugural meeting in May. To fund the interim council, a repayable advance was obtained from Treasury.

MANAGEMENT COMMITTEES

NSW Agriculture & Fisheries provides a representative on several management committees set up by the Commonwealth to advise on management of fisheries that span several states. Of these, the South East Trawl Management Advisory Committee was the most active, responding to problems with the introduction of a 3000 tonne quota on gemfish. NSW was instrumental in having the management plan amended to allow the allocation of the quota to be based primarily on historical catch instead of vessel size. The Department initiated the establishment of a long-term management working group to determine the importance of fishing to regional economies.

ESTUARINE PRAWN TRAWL MANAGEMENT

Limited-entry management was introduced to the Hunter River and Clarence River prawn trawl fisheries. Reports from industry after the season indicate that the exercise was justified and the management move a success. Endorsements are transferable to new owners of the boats to which the licences are attached but only until 1993, when the management plan will be reviewed.

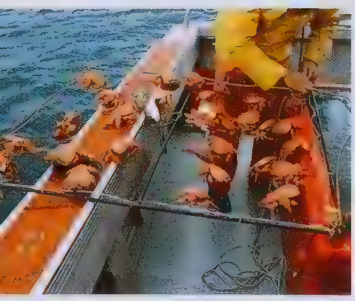
ABALONE

An industry–government working group negotiated the introduction of an individual quota scheme limiting abalone divers to an annual catch of 10 tonnes. To facilitate the introduction of the scheme the industry agreed to provide funds for computer software and administrative costs. The funds will be realised through an increased permit fee. Monitoring of the system involves daily logbooks and will provide tighter control of illicit abalone marketing by unlicensed divers.

SPANNER CRABS

A meeting of spanner crab fishermen was convened to discuss the status and future direction of this specialised industry in NSW. This new style of industry–government interaction has now become the model for NSW fisheries management.

The Department also successfully completed negotiations for the entry of NSW fishermen to the Queensland spanner crab fishery. Control of this fishery was passed to Queensland by the Commonwealth as a result of OCS negotiations.



Scientists at the Fisheries Research Institute are studying the distribution, abundance and growth of the spanner crab to assist in the management of the NSW stock.

EEL FISHING IN FRESHWATER IMPOUNDMENTS

In the past the Department has not allowed the capture of eels in freshwater impoundments because of concerns for the possible effects on species such as platypus and bass. However, the Minister agreed to issue three permits to allow the effects of this fishing to be investigated. The Department has worked with the National Parks and Wildlife Service and commercial fishermen to modify catching gear to avoid catching other fauna.

WHITEBAIT FISHING

Up to 30 licensed commercial fishermen have been approved to use a small-mesh hauling net to capture whitebait in selected estuarine and ocean waters. Data will be collected over two to three years to allow longer-term management decisions to be made.

COMMERCIAL FISHING LICENCES

Computerisation of the State and Commonwealth fisherman's and boat licences was completed during the year. The system allows regional offices on-line access to details of each licence, and generates a summary report on each licence holder.

Licensing staff worked under considerable pressure whilst the system was being phased in. The system became fully operational in December and all backlogs have been overcome. The processing time has been reduced significantly to a point where most licences are issued within 10 days of receipt.

Currently there are 2780 NSW commercial fishermen, 1406 of whom also hold a Commonwealth Master Fisherman's licence. Additionally, there are 3444 NSW licensed commercial fishing boats, 898 of which are also licensed to fish in Commonwealth waters.

HABITAT MANAGEMENT

The public's renewable resources, in this case a mangrove forest, are often destroyed for short-term commercial gain.

Coastal developments and pollution were prominent issues throughout 1988–89. A diverse range of development proposals and assessments was processed by the Habitat Management Unit. The range included over 100 Environmental Impact Statements or Effects Statements, 35 Environmental Plans and Environmental Studies, 19 sea dumping applications, 60 applications for dredging and reclamation and a further 38 assessments under the Fisheries and Oyster Farms Act for mangrove destruction, fish passage and blasting.

Illegal dredging, reclamation and mangrove destruction led to a number of successful prosecutions, of which 12 required restitution orders.

Owing to the growing concern for water quality and the impacts of fish products a ban on the sale and supply of antifouling paints containing TBT was introduced for craft under 25 m.

The aquatic reserves program was assisted by a grant from the Australian National Parks and Wildlife Service under the State's Cooperative Assistance Program. Resource inventory information was collected and compiled for the coastal headlands within the proposed Solitary Islands Marine Reserve.

Habitat protection was the theme for the display at the Royal Easter Show.

AQUACULTURE

The Department made a commitment to promoting aquaculture ventures in the State. A number of commercial marine fisheries appear under threat; in the longer term, aquaculture has the potential to supply a much greater proportion of the fish currently consumed.

During 1988–89, 117.4 tonnes of edible prawns were harvested from 129 ha of ponds in NSW.

A major proposal to stock Lake Nettlegoe on the Darling River, near Menindee, with silver perch for subsequent harvesting was approved and a fish farm permit was issued.

Pacific oyster control program. Following approaches from, and negotiations with, the oyster industry, the Department formulated a new Pacific Oyster Control Program which was gazetted in May 1989.

Under the amended plan, very limited movement of oysters will be permitted from all zones to leases in Zone 2, which is predominantly free of Pacific oysters. Leased areas in Zone 2 are important as fattening areas for oysters moved from Port Stephens and southern estuaries.

RECREATIONAL FISHERIES ADVISORY COUNCIL

Legislation was amended to include the North and North West Amateur Fishermen's Association and the South West Angler's Association as full members of the Recreational Fishing Advisory Council.

LEGISLATION

Following a major review of the regulations under the Fisheries and Oyster Farms Act, the Fisheries and Oyster Farms (General) Regulation 1989 and the Fisheries and Oyster Farms (Nets and Other Fishing Gear) Regulation 1989 were proclaimed on 1 May 1989.

Long-standing notifications and ministerial concessions are now included under the regulations and a number of obsolete regulations are omitted. The new format provides easy distinction between regulations affecting commercial and recreational fisheries.

Amendments to the Fisheries and Oyster Farms Act were proclaimed on 1 May 1989 and expand the Schedule for offences that can be handled under the penalty notice system (on-the-spot fines). It is anticipated that this action will assist in reducing the pressure on the NSW Court system.

LAW ENFORCEMENT

Staffing. In November 1988 a mobile squad of four officers was established to increase surveillance of black marketing of fish and to support fisheries inspectors with undercover activities at trouble spots throughout the State. Since its inception the squad has been responsible for 124 prosecutions (including 18 in conjunction with Regional Staff) and 59 seizures of nets, other fishing gear and fish.

The total number of fisheries inspectors is 87.

Equipment. A new 11 metre offshore fisheries patrol vessel, FPV *Port Jackson VIII*, was commissioned on 29 May 1989. This brings the Department's ocean patrol fleet to five vessels.

Prosecutions. Two thousand Offence Reports were processed and referred to the courts for determination during the year. Included inthe processing was the laying of informations and the issuing of summonses by mail to the defendants. These functions were formerly undertaken by the Police Department, but since 1987 NSW Agriculture & Fisheries has gradually taken them over. The Department (through the Division of Fisheries rather than the Legal Branch) is now responsible for processing matters through all the State's District Courts. Fifty-seven Penalty Notices were issued during the year.

Seizures. Some notable seizures of illegal fishing gear were made. This included a large purse seine net approximately 1000 metres in length and several kilometres of meshing net. Also seized were a number of large quantities of illegally taken fish and abalone, including one seizure of almost 1000 abalone.

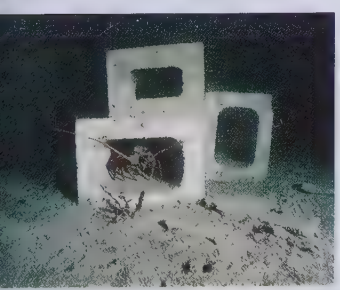
SHARK MESHING

Results of the shark meshing program, September 1988 to April 1989

Beaches meshed	Species taken					
	Bronze whaler	White pointer	Tiger	Grey nurse	Hammer head	Others
Newcastle (Stockton to Catherine Hill Bay)	12	3	0	0	27	1
Central Coast (Lakes to Ocean Beach)	10	1	2	2	24	1
Sydney north (Palm Beach to Manly)	6	0	1	1	10	0
Sydney south (Bondi to Garie)	11	1	2	2	15	2
Illawarra (Coledale to South Wollongong)	4	0	0	0	8	4
TOTAL	43	5	5	5	84	8

Total cost of the Shark Meshing Program for this year was $262 000.

FISHERIES RESEARCH & DEVELOPMENT



Shelters used in experiments to study mortality and growth in eastern rock lobsters held in aquarium conditions at the Fisheries Research Institute.

AQUACULTURE

Oyster research concentrated on the production of a superior Sydney rock oyster through selected breeding.

Scallops were successfully spawned at Port Stephens for the first time in May 1989. Preliminary results suggest excellent success for the settlement of larvae under experimental conditions.

Prawn farming research continued to concentrate on techniques that will improve the management strategies for this growing industry.

POLLUTION SCARE

A major media campaign early in 1989 relating to pollution caused by the Sydney Water Board sewage outfalls drastically affected fish sales as consumers were afraid that fish quality had been jeopardised. Only two per cent of fish sold at Sydney markets are caught in the Sydney area: the Department took a positive approach to overcome some of the consumer resistance

by advising the public of this and by banning commercial and recreational fishing around the three main sewage outfalls off Sydney.

Heavy metal concentrations in fish and oysters from throughout the State continued to be monitored in close liaison with the Health Department.

FRESHWATER FISHERIES RESEARCH & FISH PROPAGATION

The freshwater research program of the Fisheries Research Institute, Cronulla, and the ancillary stations at Port Stephens, Narrandera and Grafton was reviewed and strengthened. The program aims to provide information to serve as a basis for the management of freshwater fish resources, fisheries and environments.

RESEARCH PROJECTS

Research projects that continued through the year include the following:

- Artificial propagation and reestablishment in the wild of threatened species. The endangered species of freshwater eastern cod was successfully bred for the first time at Grafton and 27 300 young fish were stocked into their natural habitat. Six thousand trout cod and 3300 Macquarie perch were bred at Narrandera for release in Southern Tablelands rivers.
- Assessment of the Lake Eucumbene fishery for brown and rainbow trout allowed the ageing and growth rates of the species to be validated.
- Assessment of the mixed fishery for native species and trout in Burrinjuck Dam revealed that in the last sampling year there were lower catches of all native angling species (golden perch, Macquarie perch and silver perch) and no Murray cod were taken. Catches of introduced angling species such as common carp, goldfish and redfin all increased, whilst all salmonid catches decreased. Catches of introduced fish now account for over 60 per cent of the total.

Field trials are being used to test proposed amendments to the Pacific oyster and QX disease control plan.

Native fish propagation for recreational fisheries, 1988–89

Species	Total liberated
Golden perch	438 000
Silver perch	99 300
Murray cod	26 400
Australian bass	24 700
TOTAL	588 40

FISH PROPAGATION FOR RECREATIONAL FISHERIES

Propagation of young native fish for enhancing recreational fisheries in impoundments continued. Inland waters (west of the Great Dividing Range) are stocked with golden perch, silver perch and Murray cod bred at the Inland Fisheries Research Station, Narrandera. Eastern drainage impoundments are stocked with Australian bass bred at Port Stephens. Unseasonably cool and wet weather through the 1988–89 summer limited fish production at Narrandera.

TROUT HATCHERIES

Gaden Hatchery production 1988–89

Species	Stage	Fish released to impoundments and rivers	Donations to acclimatisation societies and sales
Atlantic salmon	ova	0	600 000
	fry	455 000	0
	fingerlings	7 600	0
	adults	2 111	0
Brook trout	fry	0	1 200
	fingerlings	115 000	0
Brown trout	ova	0	105 000
	fingerlings	69 800	0
Rainbow trout	ova	0	240 000
	fry	456 000	0
	fingerlings	108 300	0

Sales for 1988–89 totalled $22 234.50.

MARINE FISHERIES RESEARCH & EXPLORATION

Marine fisheries research, exploration and resource assessment are centred at the Fisheries Research Institute, Cronulla, with the support of the Fisheries Research Vessel *Kapala*.

MARINE EXPLORATION

The FRV *Kapala* continued to support all offshore and nearshore fisheries exploration and associated projects. *Kapala*'s efforts were concentrated on the assessment of two oceanic trawl fish species, orange roughy and gemfish, both of whose resources are already showing signs of heavy fishing pressure. The assessment of orange roughy resources off the NSW coast should be completed in late 1989. Assessment of gemfish resources is a continuing process made necessary because of the strict management of this species in southeastern Australia. The total allowable catch of 3000 tonnes introduced for the 1988 season was determined from results produced exclusively at the Fisheries Research Institute.

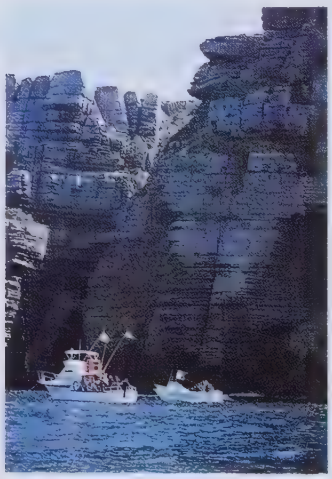
Sampling juvenile fish during the Northern Rivers Study.

JERVIS BAY STUDY

The first year of survey work was concluded at the end of June 1989 and progress reports were forwarded to the Department of Defence.

NORTH COAST ESTUARINE STUDY

To the end of June 1989 more than 17 000 fish of numerous species have been tagged and released in the Richmond and Clarence Rivers. Surveys began on the various habitat types used by each of the important recreational and commercial species. The relative impact of recreational and commercial fisheries on common fish species such as bream, flathead and whiting has been assessed; evaluation of the interaction between the numerous commercial fisheries began.



Recretional diving in Jervis Bay is assessed in the marine ecological studies being done by the Fisheries Research Institute for the Department of Defence.

FISH HEALTH

Several potentially serious diseases are endemic in fish stocks in NSW; NSW Agriculture & Fisheries is developing improved measures to control outbreaks. Progress has been made towards including important endemic and exotic fish diseases in the Stock Diseases Act. A comprehensive disease testing and monitoring program, now in operation at the Gaden Hatchery, Jindabyne, ensures that juvenile salmonid fish released for stocking throughout NSW are free of important fish pathogens.

Monthly monitoring of North Coast Sydney rock oysters for evidence of QX disease, a protozoan infection often causing severe losses, continued. This monitoring program, designed to provide early warning to growers of disease outbreaks, will be reviewed in 1989–90.

Several significant fish disease outbreaks were investigated by Regional Veterinary Laboratories during the year. A fish virology facility established at Wollongbar markedly enhanced the Department's ability to identify viral infections in fish.

SUPPORT SERVICES

During 1988–89, Head Office branches and units that provide administrative support were reorganised to reflect the Department's commitment to its staff and to meet the needs of new legislation such as the Public Sector Management Act and the Freedom of Information Act.

The position of Chief Administrative Officer was retitled as Chief, Division of Administration. Besides achieving consistency with titles in other Divisions, the new title and an altered divisional structure strengthen the functional role of the branches and units that support the Department's research, advisory and regulatory programs.

To support the Chief new positions were established to manage specific areas of the Division's responsibility. These are Manager, Financial Services; Manager, Staff, Personnel and Industrial Relations; Manager, Computer Services; Manager, Management and Staff Development; Manager, Executive Support; and Manager, Computerised Accounting Systems Projects.

TECHNICAL SERVICES

BIOMETRY

During the year, Biometrical Services Branch became part of the Division of Rural and Resource Economics. Biometrical services were completely regionalised with professional staff located strategically across the State.

Frequently the analysis of data requires the development of new statistical methodologies which have application in a range of projects and industries. The major developments in statistical methodologies were in the following areas:

- The Spatial Analysis of Field Experiments (SAFE). SAFE enables more accurate and efficient estimates of treatment effects by taking account of within-site variability.
- Repeated measures analysis, which leads to unbiased comparison of the performance of treatments over time.
- Survival analysis, which gives predictions of an entity surviving certain treatment and environmental conditions for a given period of time.

The new complex at Elizabeth Macarthur Agricultural Institute, Camden Park.

CAPITAL WORKS

Capital works were allocated $21 797 000 in 1988–89, including $2 641 000 for the purchase of plant and equipment, roadworks and cottage maintenance. Included in these figures were Commonwealth funds for the purchase of plant and equipment for both agricultural colleges.

Construction of laboratories and associated facilities at the Elizabeth Macarthur Agricultural Institute (EMAI) received $17 214 000. Stage I of the complex is now 80 per cent complete, Stage II has begun and documentation of plans and specifications has been completed for Stage III. The total cost of constructing Elizabeth Macarthur Agricultural Institute is $34.1 million at June 1989. The complex will be completed by February 1990.

At a total cost of $4.5 million the safety and fire hazard renovations at the Biological and Chemical Research Institute (BCRI), Rydalmere, have reached their final phase with work being undertaken in B Block, the Entomology and Biology wing, at an estimated cost of $1.89 million.

Minor works completed were the connection of the North Coast Agricultural Institute, Wollongbar, to the Shire sewerage system, upgrading the salt- and freshwater systems at the Brackish Water Fish Culture Research Station, Salamander Bay, and renovation of the historic cottage 'Bona Vista' at C. B. Alexander Agricultural College, Paterson.

An Atomic Ignition Spectrometer costing $193 000 was purchased and installed at BCRI and a fisheries patrol vessel was purchased for $200 000.

Major works completed during the year (Figures in parentheses are total costs.)

	1988–89 expenditure ($)
Elizabeth Macarthur Agricultural Institute, Stage I and Stage II (total cost of Stages I, II and III $34.1 million at June 1989)	14 569 000
Biological and Chemical Research Institute, safety renovations Block A and B	566 000
Board of Tick Control Laboratory completion and sewerage connection, North Coast Agricultural Institute, Wollongbar.	246 000
Completion of extensions, C. B. Alexander Agricultural College (Commonwealth funds).	213 000
Upgrading salt and freshwater systems, Brackish Water Fish Culture Research Station, Salamander Bay.	87 000
Renovation of 'Bona Vista' Cottage, C. B. Alexander Agricultural College, Paterson.	60 000

DISPOSAL OF ASSETS

Property assets and some functions were examined to determine surplus facilities.

Bega Dairy Demonstration Farm was sold by auction for $605 000 and Dutton Trout Hatchery, Ebor, for $550 000.

Graham Park Artificial Stock Breeding Centre, Berry, was subdivided. The Artificial Breeding Centre, comprising buildings, plant and the associated business, was transferred to a trust company of the NSW Dairy Farmers Association. The Pasture Research Unit will continue to operate and the remainder of the property will be sold at auction.

Negotiations are in progress for disposal of the Agricultural Station, Seven Hills.

Tourist facilities at the Inland Fisheries Research Station, Narrandera, the Gaden Trout Hatchery, Jindabyne, and the Agricultural Research and Advisory Station, Grafton, were leased to Old Innes Pty Ltd.

Nine cultivars of Geraldton wax (*Chamelaucium uncinatum*), bred at Gosford Horticultural Research and Advisory Station, will be commercialised.

TECHNOLOGY TRANSFER

Emphasis continues to be given to ensuring that intellectual property arising from research and development activities is used to promote industry and employment in NSW.

Commercial agreements have been made with Ag-Seed Pty Ltd for the marketing of five varieties of canola (rapeseed). Aurora lucerne is being marketed overseas by Seedco. Six ornamental Australian native plants are being commercialised by New England Technology Pty Ltd, while Auspharm is handling the vaccine and diagnostic kit for enzootic pneumonia in pigs.

Negotiations are at an advanced stage for the commercialisation of other innovations including statistical software, mycoherbicides, humidity control in refrigerated containers, a spray controller and vaccines for akabane and swine erysipelas.

The use of word processors in the Publications and Information Unit means much greater versatility in editing publications.

Publications and media output that appeared during period.

	REG 1	REG 2	REG 3	REG 4	REG 5	HO*	TOTAL
a. 1988–89							
1. Original press releases	483	1184	437	806	240	126	3276
2. Original radio broadcasts	97	1289	289	769	193	64	2701
3. Video tapes produced	2	8	15	22	22	12	81
4. Original TV programs	46	51	6	58	65	13	239
5. Agfacts						113	113
6. Scientific bulletins produced by Department						10	10
7. Number of newsletters currently published	9	27	7	8	7	30	88
8. Newsletter editions produced for public	32	110	19	52	29	31	273
9. Contributions to newsletters	243	450	205	278	200	254	1631
10. Brochures, stickers, folders for public	12	20	20	11	8	49	120
11. Information sheets produced for public	108	142	49	68	115	49	531
12. Booklets produced for public	6	66	40	46	5	51	214
13. Professional display boards produced for public	0	25	0	39	20	27	111
14. Other display boards	38	10	57	35	20	102	262
b. 1987–88							
15. Papers and notes published in non-departmental scientific journals	58	17	7	10	67	122	281
16. Books, book chapters and post-graduate theses	6	3	0	1	5	35	50
17. Contributions to proceedings of societies	63	15	2	8	107	125	320

* Head Office and statewide establishments

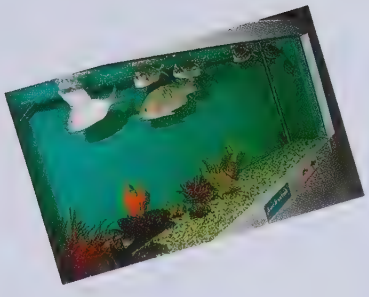
The Art Room produces around 500 publications and displays each year, including this Annual Report.

PUBLICATIONS & INFORMATION

Extensive use of publications, press, radio, television, video and displays helped the Department maintain its position as the largest provider of agricultural and fisheries information in NSW.

Printed publications. Agfacts, the Department's major information series, continued to provide high quality information to NSW farmers, fishers and home gardeners. The number of titles in the series rose from 1223 in July 1988 to 1336 in June 1989. A further 36 titles were revised during the year, and 20 were reprinted.

The number of subscribers to Agfacts fluctuated each month, with 852 at 30 June 1989.



'Fair go for fish', the Department's stand at the Royal Easter Show, won first prize in its category.

A major internal review investigated client and departmental needs, and the production, marketing and effectiveness of publications and displays.

Agricultural Holdings Law in New South Wales by Gerard Carter, the definitive textbook on the subject, was printed and made available for sale to lawyers and other workers in the area.

A major upgrade of the Agriculture & Fisheries Bookshop, on the ground level of the Department's head office in the McKell Building, Rawson Place, Haymarket, was completed. The full range of Agfacts and other sales publications is now displayed on self-service shelves, making selection and purchase much easier and quicker for the public.

The Agriculture & Fisheries bookshop in the McKell Building has been redesigned. Patrons can now browse through books and Agfacts at their leisure.

Sales. Sales of publications rose from $280 889 in 1987–88 to $284 037 in 1988–89. This total comprised $112 124 from Agfacts, $28 022 from Agfact subscriptions, $57 950 from other books and posters and $ 85 941 from Commonwealth-funded publications.

Displays. Major displays were mounted at the Royal Easter Show, Ag-Quip, the Australian Bicentenary Wool Conference, the Orange National Field Days, the 6th World Conference of Agricultural Journalists and the Produce Marketing Association of America Convention in Memphis, Tennessee.

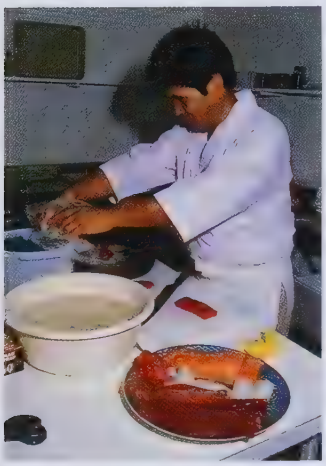
The Department's 'Fair go for Fish' display at the 1989 Royal Easter Show won first prize in the Primary Industry and Horticultural Display section.

Libraries. Eleven staffed libraries provide reference information and ensure that literature published by the Department is widely available both in hard copy and on electronic databases.

The Department contributed over 2000 entries to ABOA (Australian Bibliography of Agriculture) and more than 3000 entries to CLANN.

This year, 5579 books and journals (representing 2905 titles) were bought at a total cost of $348 879.

Asian stir-fried vegetables proved popular with the hungry crowds at the Royal Easter Show.



Daily sushi and sashimi demonstrations were given at the Royal Easter Show.

PRIMARY PRODUCTS PROMOTIONS

The aims and objectives of the Primary Products Promotions Unit are to promote the 'Fresh is Best' message to domestic consumers, hospitality industry personnel and educators in order to create an awareness of good nutrition, ultimately increasing sales for the fresh food producers by increasing the consumption of fresh food. The Unit also aims to provide and maintain a communications link between growers, agents, wholesalers, retailers and consumers.

Promotional activities are conducted in specific yet overlapping areas of:

- promotion with media
- promotion through education
- grower, agent, retailer and consumer liaison.

A report on best buys in fruit and vegetables was presented every Friday morning on ABC radio 2BL. Weekly interviews were given to country radio stations. These interviews featured seasonal fruits and vegetables with recipes. The interviews also supported topical promotions such as Nutrition Week, Mushroom Week, the Heart Food Festival and the Royal Easter Show.

The 'Fresh Talk' column was published fortnightly in the magazine section of *The Land* newspaper. Articles and recipes on seasonal fruits and vegetables were printed in several magazines and newspapers in response to press releases issued from the PPPU in association with specific promotions.

Media visit days were organised for the Strawberry Growers' Field Day and peach and nectarine growers.

New promotional recipe leaflets were issued for the NSW Stonefruit Growers' Council and the NSW Banana Industry Committee. A promotional leaflet supporting the Healthy Diet Pyramid was produced. This was launched at the Royal Easter Show and was promoted at field days throughout the year.

'Fresh is Best' update and promotional demonstrations were given at various field days and schools of home economics at TAFE colleges.

The PPPU used a perspex model of the Healthy Diet Pyramid to support all public promotional demonstrations at departmental shows and field days.

Promotions were organised, with point-of-sale demonstrations and samples, for Nutrition Week, stonefruit growers and nashi growers. These demonstrations were conducted in leading shopping centres and fruit and vegetable markets. Results were assessed and reported to the relevant sponsor.

LAND RESOURCES & ENVIRONMENT

The process of developing or reviewing local environmental plans by rural shires has continued at a rapid pace. The Department has met the continuing need for advice on rural resources and promoted a planning philosophy of encouraging flexibility for farm adjustment, maintaining the agricultural resource and limiting the potential for conflict.

The Department has been requested to advise councils and government authorities on a wide range of development proposals. Of special importance has been tourist development along the coast and in the Hunter Valley where the potential for conflict with agricultural and fisheries interests is great.

The Department is working closely with a number of shires to prevent or resolve conflict which derives from intensive agricultural industries. The mushroom composting industry in the Windsor Shire is under considerable public criticism because of odour emissions. The Department is working with Council, the public and the industry to reduce and perhaps eventually eliminate the odours.

Determinations under the Mining Act. The full regionalisation of the Department's activities has led to increased efficiency in undertaking responsibilities under the Mining Act.

Departmental officers inspected and assessed two mining licence areas, nine prospecting licence areas and one exploration licence area.

Mapping program. With approximately two thirds of the rural shires now mapped for agricultural land classification, the Department is reappraising its priority for the remaining shires. Most recently mapping has been completed for the Mulwaree and Walcha Shires and the Murray River Riparian Strip.

PESTICIDE ADVISORY PROGRAMS

The Pesticide Project Team continued to coordinate programs designed to inform clients on the proper use and care to be exercised with agricultural and veterinary chemicals.

The Department produced a manual entitled *Chemical Residues in Livestock* and a flip-card reference manual entitled *Withholding Periods for Chemicals used on Livestock*. Both manuals were provided to officers with livestock responsibilities to keep them informed of the latest technical information on the use of agricultural and veterinary chemicals.

In conjunction with the Tasmanian Department of Agriculture, a publication entitled *Care with Animal Medication on the Farm* was produced and will be widely distributed throughout the NSW.

Selected metropolitan schools were surveyed to gauge the effectiveness of the Department's 'Think Before You Spray' campaign conducted in 1988. The results demonstrated that 75 to 80 per cent of the children surveyed were aware of the campaign.

The 165 tonnes of organochlorines surrendered by NSW farmers was disposed of overseas by high temperature incineration.

GROUP ACTIVITIES UNIT, COWRA

The Group Activities Unit provides the secretariat for two rural organisations—the Agricultural Bureau of New South Wales Inc. and the Rural Youth Organisation of New South Wales Inc.

Agricultural Bureau of New South Wales Inc. The Bureau is a statewide organisation of people interested in rural activities. It was founded in 1910 by the Department of Agriculture to disseminate agricultural information and to organise agricultural activities in rural areas to the mutual benefit of departmental advisers and Bureau members. Membership for the year totalled 1741 members in 80 branches, an apparent 14 per cent decrease on 1987–88 figures because of problems affiliating cash members.

Programs conducted during the year included the 1988 Annual Conference at Temora and the Murrumbateman Field Day in October.

The Department provides $10 000 to assist members of the Executive Council to defray their cost of travel and accommodation. A grant of $1250 is also made to the Agricultural Bureau to assist with the cost of running the Annual Conference.

Rural Youth Organisation of New South Wales Inc. The Rural Youth Organisation is an organisation for young people, generally in small rural communities, who are interested in the land, the farm, the home and the rural community. The Organisation aims to make young people self-reliant, responsible and effective citizens of their community. There are 50 Rural Youth Clubs throughout NSW with 1136 members, a reduction of eight clubs and 10 members over 1987 figures.

Over 600 activities were held during the year with a total attendance of 22 000 people.

The Reserve Bank of Australia contributed $6300 towards a special farm budget fund which is to be prepared.

The Rural Youth Organisation has become self-sufficient in its funding and receives no direct funding from NSW Agriculture & Fisheries.

COMPUTER SERVICES

The Department completed the third stage of a major upgrade of computer hardware. Specific improvements during the year include:

- the introduction of IBM compatible microcomputers
- the purchase of the SIR database for use by biometrical and research staff
- the introduction of WordPerfect word processing software as the new standard

- the installation of a local area network (LAN) in the Minister's Office
- the purchase of system accounting tools to monitor usage of the Department's computer network.

Staff turnover in the branch continued to be high with movement of officers to other Departments and the private sector.

INFORMATION SYSTEMS

An Information Systems Unit was established to coordinate the development of management information systems through the Department and to review the management information component of systems currently being developed.

EDUCATION

'Tocal' students have an opportunity to develop their skills in sheep husbandry.

AGRICULTURAL COLLEGES

The colleges administered by NSW Agriculture & Fisheries provide practical agricultural courses for both intending and practising farmers. The two colleges—C. B. Alexander Agricultural College at Paterson in the Hunter Valley and Murrumbidgee College of Agriculture at Yanco in the Riverina—accept Year 10 school leavers (School Certificate level) and above, and provide courses toward a Certificate in Agriculture (one year) and an Advanced Certificate in Agriculture (two years). Both courses are full-time residential and develop practical farm management skills using a real-farm situation. They also provide home study programs and short courses for adults interested in farm management and technology.

COURSE DEVELOPMENT

An independent consultant employed by C. B. Alexander College to assess its certificate courses demonstrated that the courses are meeting market needs and expectations. The problem-based learning style is continuing to attract interest from other educators.

Murrumbidgee College introduced one-week electives into the Certificate in Agriculture course. These electives had a strong practical emphasis and were well received by students. The college is also developing curricula for Advanced Certificates in Pastoral Property Management and Production Horticulture.

COOPERATION WITH FARMERS

Many farmer associations and groups work closely with the Colleges, as well as individual farmers who provide their farms for off-campus work. Students from C. B. Alexander College were able to work on Queensland farms, through an expansion of the cooperating farmer network.

HOME STUDY COURSES & SHORT COURSES

At Murrumbidgee College the farmer education program of short courses continued to build on its 1987 success. Landforming, Computers, Irrigated Pastures, Rice Growing, Trees on Farms, Managing Yourself and Your Staff and Pesticide Use courses were repeated a number of times during the year. Many farmers now plan to attend at least one short course each year.

The Short Course Centre at the College was used extensively during the year by 3829 people in 220 different activities. Off campus, 475 people enrolled in 27 courses.

New short courses included Investing Off Farm (in association with Bain & Co.), Life After the Farm (in association with Capita), training workshops for directors of aboriginal properties and a teaching methodology workshop for future Indonesian polytechnic teachers.

The Home Study Program at C. B. Alexander College saw a growth in student numbers and expanded courses offered. Sponsorship has become an important part of course development and presentation.

RESOURCES

Both colleges received financial assistance from the Commonwealth Department of Employment, Education and Training to enable them to buy equipment and expand programs. Equipment obtained included a dairy irrigation system, a front-wheel-assisted tractor and precision cropping equipment.

FARM REPORT

Murrumbidgee College was well represented at the Dubbo, Griffith and Wagga Wagga steer shows. Several prizes were collected.

At C. B. Alexander College the year was characterised by the availability of good feed and by good results from the beef, poultry and pig sections. A new irrigation system was installed as part of the dairy pasture program.

ENROLMENTS

The year 1988 saw an increased interest in agricultural education for both full-time and short courses at Murrumbidgee College. At both colleges the demand for graduates is outstripping the supply: there were two to three times as many jobs available as Advanced Certificate in Agriculture students at C. B. Alexander College.

TRAINING OF PROFESSIONAL STAFF

The aim of the professional officer training section is to design and deliver courses to help officers improve their skills in extension, education, supervisory communication and time management. Programs were conducted in the core skills of

public speaking, writing, using the electronic media, photography, group work and interpersonal skills. During the year 33 workshops were held for 360 officers.

RURAL & RESOURCE ECONOMICS

The Division of Marketing and Economic Services was renamed the Division of Rural and Resource Economics and reorganised. A flatter structure was developed with smaller, client-orientated units analysing and advising on issues in economic policy, farm management, regulated marketing and biometry.

POLICY ANALYSIS

The year saw major achievements in policy analysis related to grain marketing and eggs. The Department prepared a submission to the IAC inquiry into wheat marketing and provided policy advice on the implications of deregulating the domestic market.

The NSW Government review of egg marketing arrangements has involved preparation of policy advice following the presentation of an independent consultant's report reviewing the system of egg industry regulation. Several projects were completed including analyses of the competitive position and value of the NSW Egg Corporation, the debt position of producers, the financial implications of alternative options and the effect of transition arrangements.

A simple model of world trade in dairy products was developed, enabling analysis of the liberalisation of dairy trade by the major importing regions. Additional models were developed of the dairy product industries in Australia and New Zealand for analysis of the impact of Closer Economic Relations.

Other major policy analysis work involved:

- the preparation of a submission to the Senate inquiry into agricultural and veterinary chemicals, highlighting the benefits and costs of using pesticides
- development of a economic rationale for publicly funded farm advisory services as part of a review of pig advisory programs
- submissions to IAC inquiries into non-tax government charges and the food processing industry.

The three-year sugar industry assistance scheme concluded. Under the scheme the Commonwealth and State Governments contributed $3.829 million to a program aimed at improving the efficiency of the NSW sugar industry's production, harvesting, transport and milling sectors.

RURAL COSTS ANALYSIS UNIT

The Rural Costs Analysis Unit is a major new initiative with the role of focusing on the impact of government charges and regulations. The Unit is located at Parkes and operates with three economists. It completed a directory of State Government services and programs provided to the rural community.

TECHNOLOGY & INDUSTRY STUDIES

These studies evaluated alternative agricultural technologies and farming systems, and changes in industry structure, trends and performance.

Technology evaluations included:

- an economic analysis of controlling production losses in apple orchards with hail netting
- an industry workshop and a background paper on the economics of cattle crossbreeding
- a benefit cost analysis of twinning in the beef industry
- an evaluation of sustainable land management technologies appropriate to dryland, irrigated and rangeland agriculture (for example, liming for acid soils, permanent irrigation beds and weed control in the Western Division).

Industry studies included:

- completion of an industry-funded study of investment in research and development in the wool industry
- a preliminary study to develop a new strategic planning system to guide research and development investment in the meat and livestock industries (in conjunction with private consulting firms)
- a revision of lamb, pig, beef and dairy industry models and calculation of price spreads for the beef, lamb, pork and fish industries. The impact of price variablilty on pork margins and the impact of levies on beef margins were evaluated.
- a review of structural change in the Lower Hunter and Cobar districts. At Cobar the work was presented to the community advisory committee of the Murray Darling Basin Commission.

FARM MANAGEMENT

The farm management services of the Department are designed to help farmers and advisory staff adjust to changing economic, marketing, and business pressures by providing information and management approaches relevant to farm business decisions. This was achieved in 1988–89 through a wide range of activities, including:

- production of comprehensive budgeting and investment information for most agricultural enterprises and farm types throughout the State
- construction of a whole-farm model for large-area mixed farms in the Murrumbidgee Irrigation Area which will allow the assessment of the impact of alternative technologies and management practices as well as policies such as annual water transfer schemes
- extension and improvement of the Lime-it, Wireman, Sheepman, Sheepdairy, Tillman and Winegrape computer models

- assessment of the implications for farm management of a less regulated environment for egg and wheat producers (including grain storage technologies)
- arrangement of seminars for farmers and agribusiness personnel on current farm management topics such as on-farm and off-farm investment options, commodity prospects and the Australian economy
- writing additional units and revising existing units in the farm management home study program. A major new unit was developed on hydroponics.

Farm Cheque. The Farm Cheque program was further developed in the Central West and southeastern NSW. The broad aims of this program are to prepare farmers to become better managers and decision makers, by better use of physical and financial records.

The program has engendered considerable support and interest from a range of organisations and was extended from 64 producers in 2 districts to 170 producers in 5 districts. Private farm secretaries were employed to assist farmers with record keeping. Software was developed in conjunction with the software firm Agdata. The program received direct financial assistance from the NSW Rural Industries Training Committee.

RURAL COUNSELLING SERVICES

Rural counsellors provide advice and support on both financial and social issues. The NSW Government makes a 25 per cent contribution to local groups to help them qualify for the 50 per cent Commonwealth subsidy under the Rural Counselling Program. Eight local groups in the State's cropping area qualified. NSW Agriculture & Fisheries coordinated the distribution of the Government's annual allocation of $120 000.

REGULATED MARKETING UNIT

The Regulated Marketing Unit was created during the year. It is responsible for the administration of the Marketing of Primary Products Act and the Farm Produce Act and assists producer groups with other forms of organised and regulated marketing.

Marketing of Primary Products Act. The Marketing of Primary Products Act enables the establishment of marketing boards and marketing orders. There are currently eleven boards constituted under the Act. During the year, the dissolution of the Yellow Maize and Sheep Meats Boards and the Agricultural Marketing Finance Agency began. The amalgamation of the Murray Valley Citrus Fruit Board with the Citrus Fruit Marketing Board of Victoria neared completion.

There are now three marketing orders in NSW established under the Act. Collection of levies began under the latest marketing order to enable kiwifruit growers to finance the promotion of their fruit.

Farm Produce Act. The Farm Produce Act requires all agents and merchants in NSW who deal directly with growers of fresh fruit and vegetables to be licensed and sets down the terms of trade and payment conditions that licensed sellers should use. During the year, 42 complaints were registered and acted on, including the prosecution of three licensees.

PRODUCER MARKETING GROUPS

Several producer groups were assisted with establishing formalised marketing arrangements. These groups included growers of pulse crops in the Central West, horticultural growers on the North Coast and oyster farmers.

AGRICULTURAL STATISTICS

The Central Statistics Unit (CSU) coordinates the collection, storage and dissemination of agricultural statistics within the Department. Activities undertaken included:

- production of a range of summary publications providing statistics for each departmental region as well as specific industries
- substantial revisions to the computerised news bulletin (*CSU News*) containing economic, market and statistical information
- collection and reporting of market prices and quantities of a range of products sold at Flemington Markets. A new 'Early Trading Trends' report was introduced for daily release to the electronic media at 7:30 a.m.

LEGAL SERVICES

The Legal Branch provides legal advice and administrative support to the Minister and senior executives of the Department on a wide range of matters including legislation and legislative proposals.

COMMERCIALISATION

NSW Agriculture & Fisheries concluded a number of agreements with commercial partners for the commercialisation of results from research and development projects.

ENVIRONMENTAL ISSUES

The intervention of the Attorney-General was obtained in a case in the Land and Environment Court concerning the use of the herbicide 2,4-D on groundsel bush and assistance was given to the local council concerned.

LEGAL TRAINING

The Branch provided legal training to agricultural, apiary, poultry and stock inspectors employed by the Department; veterinary inspectors, stock inspectors and noxious animal inspectors employed by Pastures Protection Boards; and weeds inspectors employed by local councils.

PROSECUTIONS

The Department prepared 66 summonses under various Acts.

APPEALS

The Department assisted in the defence of appeals to the District Court under the Fisheries and Oyster Farms Act 1935 against decisions not to issue or renew commercial fishermen's licences and boat licences.

COMMITTEES

Legal officers chaired two disputes arbitrated under the Agricultural Holdings Act 1941 and monthly meetings of the Veterinary Surgeons Investigation Committee constituted under the Veterinary Surgeons Act 1986.

SUMMARY OF LEGISLATIVE MATTERS

Legal Branch prepared 46 Appointments, 21 Proclamations, 27 Regulations, 26 Notifications and Orders and miscellaneous notices for gazettal under Acts administered by the Department.

Main Acts under the administration of the Minister for Agriculture & Rural Affairs are set out below.

COMMONWEALTH ACTS

Quarantine Act 1908
Export Control Act 1982
Fisheries Act 1952

STATE ACTS

Agricultural Holdings Act 1941
Agricultural Scientific Collections Trust Act 1983
Apiaries Act 1985
Banana Industry Act 1987
Biological Control Act 1985
Canned Fruits Marketing Act 1979
Cattle Compensation Act 1951
Dairy Industry Act 1979
Dried Fruits Act 1939
Egg Industry Act 1983
Farm Produce Act 1983
Fisheries and Oyster Farms Act 1935
Fertilizers Act 1985
Horticultural Stock and Nurseries Act 1969
Marketing of Primary Products Act 1983
Meat Industry Act 1978
Non-Indigenous Animals Act 1987
Noxious Insects Act 1934
Pastures Protection Act 1934
Pesticides and Allied Chemicals Act 1978
Plant Diseases Act 1924
Potato Growers Licensing Act 1940
Poultry Meat Industry Act 1986
Poultry Processing Act 1969

Prickly Pear Act 1987
Registration of Stock Brands Act 1921
Rural Assistance Act 1989
Seeds Act 1982
Stock rtificial Breeding) Act 1985*
Stock rtificial Insemination) Act 1948
Stock (Chemical Residues) Act 1975
Stock Diseases Act 1923
Stock Foods and Medicines Act 1940
Swine Compensation Act 1928
Sydney Market Authority Act 1968
Tobacco Leaf Stabilisation Act 1967
Veterinary Surgeons Act 1986
Wheat Marketing Act 1984
Wine Grape Processing Industry Act 1979

* not commenced

STATUTE LAW (MISCELLANEOUS PROVISIONS) ACT NO. 3 1988

The following Act was amended in the budget and autumn Parliamentary sessions.

Stock Diseases Act 1923. Amendments were made to section 9 of the Stock Diseases Act 1923 so that notice of diseased stock located on land consisting of a holding situated in more than one district need only be given to a ranger or veterinary inspector for the district in which the majority of the holding is situated. There was unnecessary duplication of the required notice as notice has to be given to a ranger or veterinary inspector for every district in which the holding is situated.

STATUTE LAW (MISCELLANEOUS PROVISIONS) ACT 1989

The following Acts were amended in the budget and autumn Parliamentary sessions.

Farm Produce Act 1983 No. 30. The amendments:

a enable proceedings for an offence against the Act or regulations to be commenced within 12 months of the time when the offence is alleged to have been committed (at present proceedings must be commenced within six months by virtue of section 56 of the Justices Act 1902); and

b update references consequent on the enactment of the Local Courts Act 1982.

Fisheries and Oyster Farms Act 1935 No. 58. The amendments:

a repeal the requirement under section 90 of the Act that sellers of oysters by wholesale or retail (other than lessees of leased areas) must hold oyster vendor's licences; and

b enable proceedings for an offence against the Act or regulations to be commenced within 12 months of the time when the offence is alleged to have been committed t present proceedings must be commenced within six months by virtue of section 56 of the Justices Act 1902).

Marketing of Primary Products Act 1983 No. 176. The amendments:

a enable the position of Director of Marketing in the Department of Agriculture and Fisheries to be filled by a person otherwise employed in the Department instead of a full-time appointee; and

b enable boards constituted under the Act to fix the terms and conditions of payment under which a grade, class or description of a commodity may be sold by wholesale (the boards already have the power to set the prices of commodities).

Meat Industry Act 1978 No. 54. The amendment will enable the Homebush Abattoir Corporation to impose a penalty not exceeding $1000 for an offence against the by-laws made by it under section 78 of the Act. At present a penalty not exceeding $200, together with a daily penalty not exceeding $20, may be imposed.

Non-Indigenous Animals Act 1987 No. 166. The amendment increased from 10 to 11 the number of members of the Non-Indigenous Animals Advisory Committee and provided for the additional member to be a member and nominee of the NSW Farmers' Association.

Stock Diseases Act 1923 No. 34. The amendments:

a clarify section 20(1)(a1) of the Act to make it clear that it is an offence to contravene or fail to comply with any single provision of a proclamation, order or notification issued or made under the Act; and

b clarify section 20(1)(j) of the Act to make it clear that it is an offence to transport, drive or remove any infected stock, or cause or permit them to be transported, driven or removed, to, upon or across any stock saleyard or travelling stock reserve unless in accordance with an order of an inspector.

Agricultural Holdings Amendment) Act 1989. The Agricultural Holdings Amendment) Act 1989 amended the Agricultural Holdings Act 1941 with effect from 1 July 1989. The purpose of the amendments is:

a to repeal provisions that automatically converted a tenancy or sharefarming agreement in relation to an agricultural holding for a fixed term of less than two years into a contract for a term of two years;

b to repeal provisions that converted a tenancy or sharefarming agreement for a term of two years or more into one from year to year on the expiration of that term, if a specified period of notice to quit is not given;

c to repeal provisions that required the giving of a specified period of notice to quit an agricultural holding; and

d to extend the remaining provisions of the Act to periodic tenancies and sharefarming agreements.

The amendments are a major reform of the law relating to agricultural tenancies and sharefarming agreements and leave the parties free to make their own agreement as to the period of a tenancy or sharefarming agreement and the notice required to terminate it.

Fisheries and Oyster Farms (Penalties and Enforcement) Amendment Act 1989. This Act amended the Fisheries and Oyster Farms Act 1935 to increase substantially the fines for offences under the Act and Regulations. In addition, fines are doubled where commercial fishing operations are involved. The amendments also provide for forfeiture by court order of boats and trailers where these are used in the commission of the more serious offences.

Meat Industry Amendment) Act 1989. These amendments were requested by the NSW Meat Industry Authority. The main purpose of the amendments to the Meat Industry Act 1978 is to create new offences relating to the sale and storage of meat and processed meat on certain retail premises such as a restaurant, a butcher's shop, a delicatessen or a pet food shop.

Unless the meat or processed meat has emanated from a licensed abattoir, slaughterhouse or meat processing plant and the meat or the carcase from which it came has been inspected by a meat inspector and passed by the inspector as fit for human consumption, it will as a result of these provisions be illegal to store such meat on retail premises even though the meat may not be intended for sale to the public.

The Act will commence on 3 July 1989. Penalties for offences are $1000 in the case of a first offence and $5000 or imprisonment for two years, or both in the case of a second or subsequent offence.

Rural Assistance Act 1989. The Miscellaneous Acts (Rural Assistance) Repeal and Amendment Bill 1989 is cognate with this Act.

The objects of these amendments are:

a to replace the Rural Assistance Board with a new statutory corporation to be known as the New South Wales Rural Assistance Authority; and

b to confer on the Authority the functions currently carried out by the Board and the rural agencies of the State Bank.

The new Authority will operate from 1 July 1989 and its functions will be to provide assistance and administer schemes for the provision of assistance to farmers or other persons engaged in rural industries.

STAFF & PERSONNEL SERVICES

The restructuring of a number of departmental functions resulted in the deletion of a number of positions. A Redeployment Unit was set up to ensure that all affected officers received counselling, career guidance and assistance, were kept fully informed of developments and, where possible, were placed in suitable positions. However, 21 officers could not be placed into other areas and accepted redundancy packages. During the restructuring, close liaison was maintained with the Public Employment Industrial Relations Authority (PEIRA) and the relevant employee associations.

Significant advances were made in the basis and method of providing reports to the Executive in relation to staff strength, turnover and vacancy levels. Reports generated from computerised databases ensured that decisions were based on reliable and timely information.

A computerised file management system was introduced in the Staff Records Unit and has greatly improved the efficiency of the Unit.

Senior officers assisted the Department of Administrative Services in evaluating and testing software for a new centralised Public Sector payroll due for introduction in 1990–91.

MANAGEMENT & STAFF DEVELOPMENT

One of the major initiatives of the creation of the Division of Administration was the establishment of the Management and Staff Development Unit. The Unit provides development and training activities that reflect the Department's goals and objectives and meet the needs of staff.

At the opening of the Senior Management Development Conference. The Hon. Ian Armstrong, OBE, MP, Minister for Agriculture and Rural Affairs (second left), with Phil Small, Executive Director (Administration), and participants Doug Hocking (far left) and John Williams (far right).

Syndicate groups at work at the conference.

The conference organisers, God bless 'em.

The Unit was responsible for the development and implementation of the Department's Senior Management Development Program. The program targets senior managers not included in the Senior Executive Service and aims to provide these officers with the skills necessary to achieve the organisation's and their own goals.

The first program activity was a four-day residential conference held at the Resort Macquarie, North Ryde, during June 1989. The conference drew upon 20 senior people from the public and private sectors who shared their views and experiences on issues affecting senior management and the decision-making process. Participants included 30 departmental officers, four representatives of agricultural industry organisations and a member of the Office of Public Management.

During the year the unit also conducted 22 training workshops for city-based and regional staff.

INDUSTRIAL RELATIONS

The introduction of the Public Sector Management Act in July 1988 resulted in many of the functions of the former Public Service Board being devolved to Departments. The Department's Industrial Unit has been actively consulting PEIRA and employee associations during the transition.

A number of Award claims and PEIRA Determinations affecting departmental staff were finalised during the year. Household Employees and Herd Recorders were granted a 38 hour week and Extension Officers (Art/Display) and (Photographic Aids) were reclassified as Designers.

In addition, the new classification of Clerical Officer offers greater flexibility for the Department and officers by providing more opportunities for staff previously locked into specialised classifications. This should significantly reduce the likelihood of repetition strain injuries.

Staff from the Industrial Unit visited over 35 regional establishments during the year to discuss issues and proposals for change with staff and local management.

SAFETY & OCCUPATIONAL HEALTH

Figures provided by the Government Insurance Office as at 31 March 1989 show that a total of 215 workers' compensation claims were lodged at a cost of $297 051.70. The figures compare favourably with the same period in 1987–88 where a total of 337 claims were lodged at a total cost of $475 938.25.

Safety audits and training in occupational health and safety were conducted throughout the State and continued to receive favourable comment. The training of Workplace Occupational Health and Safety Committee members continued and a course for managers and foremen in hazard management was developed.

SPECIAL EMPLOYMENT SCHEMES

The Department continued to support special employment programs, aimed at providing vocationally based skills to disadvantaged groups within the community.

AUSTRALIAN TRAINEESHIP SYSTEM (ATS)

The ATS is aimed at providing training and employment opportunities to unemployed youth (some with disabilities) through a concurrent formal course at TAFE colleges and

STAFF STATISTICS

Staff statistics as at 30 June 1989.

	REGIONS* 1	2	3	4	5	M	TOTALS
STAFF OCCUPYING ESTABLISHED POSITIONS							
Plant Industries	113	276	66	132	292	350	1229
Animal Production Services	76	76	65	69	42	44	372
Animal Health Services	112	45	13	31	28	160	389
Fish Industries	23	55	5	25	18	135	261
Administration and Support Services	43	95	25	46	79	253	541
SUB TOTALS	367	547	174	303	459	942	2792
EMPLOYMENT SCHEMES							
Technical Jobs for Women	0	1	0	0	4	0	5
National Employment Strategy for Aboriginals	3	2	0	3	3	1	12
NESA Apprentices	2	0	0	0	1	0	3
Australian Traineeship	11	22	0	4	13	6	56
SUB TOTALS	16	25	0	7	21	7	76
Temporary employees not occupying established positions	81	131	17	30	76	55	390
Ministerial employees	155	18	7	0	0	0	180
SUB TOTALS	236	149	24	30	76	55	570
TOTALS	619	721	198	340	556	1004	3438

on-the-job experience with the Department. In January 1989 the Department trained 57 people under this scheme.

APPRENTICESHIPS FOR PERSONS WITH DISABILITY

Four apprentices covering various trade categories were employed under a fully subsidised apprenticeship program designed to provide vocational trade training to people with disabilities. This program was conducted in conjunction with the NSW Department of Industrial Relations and Employment.

TRAINING FOR ABORIGINALS PROGRAM

The Department continued to participate in this program, employing apprentices covering various trade categories under a subsidised apprenticeship program. This program was negotiated with the Commonwealth Department of Employment Education and Training. Those employed under the program will serve a trade apprenticeship of four years involving attendance, instruction and examination through a TAFE college and on-the-job instruction with the Department.

SENIOR STAFF CHANGES

- Dr A. M. Smith was appointed General Manager (Market Development).
- Mr D. A. Hayman was appointed Executive Director (Policy and Planning).
- Mr R. A. Claxton was appointed Director of Fisheries.
- Mr L. F. Reynolds was appointed Executive Assistant to the Director-General.
- Mr I. A. Coffey was appointed Chief, Division of Animal Production.
- Ms H. Scott-Orr was appointed Chief, Division of Animal Health.

LIABILITY FOR LEAVE ACCRUAL

The Department's liability for accrued leave entitlements as at 30 June 1989 was estimated at $9 917 000 for recreation leave for all employees and $26 389 000 extended leave for 1510 employees. These figures were based on a 60 per cent sample of the Department and have been proportioned using average salaries for different classifications.

CONSULTANTS

Consultants were contracted when staffing resources were unavailable or where it was considered essential to use people with specific skills or extensive experience in particular areas.

The following consultants were engaged by the Department during the year: Mr M. Abell, Acil Australia Pty Ltd, Amos, Aked, Swift Pty Ltd, Arthur Andersen and Co., ASI, Canto Consultancy, Coopers and Lybrand, Corporate Vision, Frontline Marketing Services, Mr W. Haines, Kewagama Holdings Pty Ltd, Mr M. Lincoln-Smith, Mr T. McDowell, Ms A. Marshall, Peat Marwick Hungerfords, PK Information Systems, Price Waterhouse Urwick, PRMR Enterprises Pty Ltd, Mr T. Rees, Mr N. Ridgeway, C. A. Sinclair and Associates, Sly & Weigall, Timmins Ray Pty Ltd, Touche Ross, Tricom QIS, Typeface Research, Dr A. Underwood, Westgarth Baldick, Mr G. Yabsley.

OVERSEAS PROJECTS

OVERSEAS AGRICULTURAL DEVELOPMENT

A three-year agricultural development project was successfully completed in northern Guangdong, China, in March 1989. The project applied improved pasture and cattle management technology to areas of land that were previously agriculturally unproductive and provided new information on pastures in acid soils.

In other countries departmental specialists undertook 28 consultancies covering a wide range of disciplines. These countries included Yemen, Indonesia, Mali, Fiji, Tonga, Thailand, Zambia, Cambodia and Malaysia.

Consultancies were funded by the Australian International Development Assistance Bureau, the Australian Centre for International Agricultural Research, the United Nations Food and Agriculture Organisation and private consultant organisations.

VISITORS TO NEW SOUTH WALES

Itineraries and meetings dealing with agriculture were organised for 73 official visitors from 10 countries.

Two Chinese scientists, funded by the Chinese government, were attached to departmental research institutions for training.

OVERSEAS STUDY TRAVEL

Fifty-six officers travelled overseas during 1988–89 to present and exchange information on agricultural science and technology at international conferences and to visit collaborating scientists in research and production organisations in 23 countries. Ninety per cent of overseas visits were funded by relevant industry research funding organisations and other external bodies.

Reports on overseas studies are submitted to funding bodies, used in the development of departmental research and advisory programs and, where appropriate, published for general distribution.

A summary of overseas study travel follows.

- R. A. Hare, Senior Research Agronomist—United Kingdom, Israel and Italy, 28 days from June 24 to attend 7th International Wheat Genetics Symposium and visit research institutes.
- L. G. Lewin, Senior Research Agronomist—USA, nine days from June 24 to attend the 22nd Rice Technical Working Group and to study new technology to increase the genetic potential for higher production in rice.
- W. S. Clampett, Special Agronomist—USA, 23 days from June 24 to attend the 22nd Rice Technical Working Group and to study the transfer of technology on rice production.
- G. L. Roberts, Research Agronomist—Europe and United Kingdom, 26 days from July 2 to attend the Third International Oat Conference and to study new techniques for selection of improved genetic material.
- G. A. C. Beattie, Senior Entomologist—USA and Canada, 20 days from July 2 to present a paper at the 18th International Congress of Entomology and to study aspects of biological control of citrus pests.
- G. Baker, Senior Entomologist—USA and Canada, 11 days from July 2 to present a paper at the 18th International Congress of Entomology and to study research programs on locust and grasshopper control.

- N. W. Forrester, Special Entomologist—Canada, 7 days from July 2 to present a paper at the 18th International Congress of Entomology and to study developments in insecticide management strategies.
- G. P. Lamont, Senior Research Horticulturist—USA, 20 days from July 6 to investigate the potential for increased export of Australian native plants.
- P. B. Hughes, Research Scientist—USA, 9 days from July 8 to attend the 32nd Livestock Insects Workers Conference and present a technical paper.
- M. L. Curll, Supervisor, Research—USA, 5 days from July 17 to attend the Trilateral Workshop on Legume Persistence in Pastures and to present a review paper on climatic and related stresses on legumes.
- Z. Hochman, Research Agronomist—USA, 5 days from July 17 to attend the Trilateral Workshop on Legume Persistence in Pastures and to present a review paper on climatic and soil-related stresses on legumes.
- S. J. Allen, Senior Plant Pathologist—USA, 21 days from July 22 to visit leading cotton pathology research institutions.
- B. V. McCleary, Principal Research Scientist—United Kingdom and Europe, 38 days from July 22 to present invited papers at two International Symposia on carbohydrates.
- A. E. Marshall, Primary Products Promotions Officer—USA, 13 days from July 20 to attend the 16th International Congress of Home Economists.
- H. Scott-Orr, Director, Disease Control—Denmark, 4 days from July 25 to attend the 5th International Symposium on Veterinary Epidemiology and Economics.
- S. J. Butt, Agricultural Mechanisation Officer—USA, 29 days from July 31 to study new technology in harvesting and handling hay.
- T. Nair, Senior Research Scientist—Hong Kong, 7 days from August 1 to attend the Eighth International Conference on Global Impacts of Applied Microbiology.
- A. M. Cadell, Advisory Officer—United Kingdom and Holland, 26 days from August 22 to attend the 16th International Course on Vocational Education and Teaching in Agriculture and to study agricultural training and service programs.
- P. T. Wong, Senior Research Scientist—Japan and China, 27 days from August 19 to attend an international congress and symposium on plant pathology.
- I. G. Ferris, Pesticide Chemist—Netherlands and England, 24 days from September 1 to attend a symposium and workshop organised by the European Weeds Society.

- D. Lemerle, Research Agronomist—Netherlands and England, 21 days from September 1 to present a paper at the European Weeds Society's International Symposium and to study developments in herbicide selectivity.
- P. Kable, Senior Plant Pathologist—Japan, 10 days from August 19 to evaluate handling and marketing procedures for Nashi pears.
- C. R. Wellings, Senior Plant Pathologist—United Kingdom and Europe, 22 days from August 24 to present technical papers at the Seventh European and Mediterranean Cereal Rust Conference and to study developments in rust diseases of wheat.
- L. W. Smith, Principal Agronomist (Weeds)—Netherlands, 3 days from September 6, to attend the European Weeds Society's International Symposium.
- R. W. Medd, Special Research Agronomist—United Kingdom and France, 23 days from September 9 to present a paper at the 8th International Symposium on Biology, Ecology and Systematics of Weeds and to visit research institutes.
- K. Bevington, Senior Horticulturist—China, 8 days from September 12 to undertake a design study for a collaborative research project.
- B. J. Restall, Senior Research Scientist—New Zealand, 14 days from December 4 to arrange liaison on goat breeding research and development programs.
- R. Kearney, Director, Fisheries Research Institute—New Zealand, 5 days from August 15 to attend Trilateral Talks on Southern Bluefish Tuna.
- J. Pepperell, Fisheries Biologist—USA, 5 days from August 1 to attend an International Billfish Symposium.
- J. Pitt, Principal Officer (Publications)—Japan, 9 days from September 9 to investigate advances in printing and publication technology.
- G. A. Wise, Regional Director of Veterinary Services—New Zealand, 16 days from February 10 to attend Second International Congress for Sheep Veterinarians.
- H. S. Saini, Senior Chemist—Canada, USA and Europe, 19 days from November 21 to present a paper at the International Workshop on Anti-Nutritional Factors in Legumes and to visit laboratories engaged in this area of research.
- D. J. Luckett, Research Agronomist—Europe, United Kingdom and Israel, 27 days from November 10 to present an invited paper at the Second International Congress of the Society for Plant Molecular Biology and to visit research institutes.

- J. Holliday, Senior Technical Officer—China, 6 days from September 10 to evaluate the potential for export of commercial oyster farming technology.
- J. L. Lloyd, Research Horticulturist—Thailand, 5 days from December 9 to present a technical paper to the Third International Workshop on Temperate Zone Fruits in the Tropics and Sub-Tropics.
- J. M. Morgan, Senior Research Scientist—Egypt and Israel, 14 days from November 25 to attend and present a keynote address to a workshop on increasing drought resistance in cereals.
- P. C. Fahy, Senior Plant Pathologist—New Zealand, 3 days from December 4 to participate in a Commonwealth mission to evaluate the effectiveness of pome fruit dipping techniques.
- G. R. Griffith, Senior Research Scientist—New Zealand, 7 days from February 3 to present a paper to the 33rd Annual Australian Agricultural Economics Society Conference and to discuss cooperative dairy industry research.
- J. E. Searson, Special Veterinary Research Officer—Malaysia, 4 days from January 16, to present a paper at a Workshop on Diagnosis, Control and Eradication of Brucellosis in Asia and the Western Pacific.
- J. D. Mullen, Special Economist—New Zealand, 9 days from February 1 to present a paper to the 33rd Annual Australian Agricultural Economics Society Conference and to consult on collaborative research.
- D. P. Godden, Senior Research Scientist—New Zealand, 4 days from February 6 to present papers at the 33rd Annual Australian Agricultural Economics Society Conference.
- I. A. Rose, Special Research Agronomist—Argentina, 14 days from March 1 to attend the Fourth World Soybean Research Conference and to study local production technology.
- W. J. O'Halloran, District Livestock Officer (Sheep)—New Zealand, 10 days from March 13 to study aspects of prime lamb production.
- P. J. Healy, Senior Research Scientist—USA and Germany, 105 days from February 11 to study developments in identification of genetic diseases of cattle.
- B. Sundstrom, Special Livestock Officer—USA, United Kingdom and Europe, 63 days from April 20 to undertake a study tour on cattle marketing and evaluation on a Churchill Fellowship Award.
- N. Wratten, Research Agronomist—USA and Canada, 16 days from April 6 to present a poster session at the Fifth Crucifer Genetics Workshop and to visit research centres.

- M. C. Mackay, Curator, Australian Winter Cereal Collection—Syria and Italy, 31 days from April 28 to attend the International Workshop on Evaluation and Utilization of Genetic Resources in Wheat Improvement and to establish contacts with germplasm collection centres.
- A. Dunlop, Special Livestock Officer—USA, Canada and Japan, 45 days from May 7 to study cattle feedlot and marketing technology.
- P. F. O'Connor, Principal Officer (Aquaculture), Singapore, Japan and Taiwan, 41 days from April 11 to study advanced technology in fish farming.
- L. Revelant, District Horticulturist—Singapore, 5 days from May 19 to examine markets for fruit and vegetables.
- B. A. Richardson, Principal Officer (Habitat Management)—USA, 24 days from May 11 to attend the Second International Seminar on Coastal Marine Parks and Protected Areas.
- P. C. Fahy, Senior Plant Pathologist—United Kingdom, Europe and USA, 34 days from June 4 to attend the Seventh International Conference on Plant Pathogenic Bacteria and to develop cooperative research on manure composting.
- H. Allen, Technical Officer—Finland, 4 days from June 12 to present a poster session at a Symposium of the International Association of Cereal Science and Technology.
- M. G. May, Special Agronomist—USA and Canada, 26 days from June 5 to study new economic concepts in cereal production.
- H. Creecy, District Horticulturist—New Zealand, 15 days from May 9 to assess new technology in wine grape production.
- C. F. McRae, Research Fellow—USA and Switzerland, 110 days from June 5 to study new developments in biological weed control.

FINANCIAL MANAGEMENT

During 1988–89 the Computerised Accounting System (CAS) continued to be improved and developed. All of the recommendations to overcome problems identified in a report by consultants Touche Ross in 1988 were implemented.

The taskforce approach to handling problems associated with the operation of the CAS continued during 1988–89. A project manager was appointed from 1 July 1988. Projects undertaken during the year included:

- a review of regional subdrawing account procedures
- overseeing of the culling of the Chart of Accounts
- testing and release of upgraded accounting software

- establishment of CAS Users' Group
- production of high quality user's and training manuals and implementation of CAS trainer training and CAS basic training workshops for staff.

In preparation for the introduction of accrual accounting over the next few years, an assets management module was evaluated. This will be introduced in the 1989–90 financial year and will be the first step towards the conversion to accrual accounting and provision of a formal computerised record of all assets controlled by the Department.

GRANTS

The total research and development grants to the Department from non-Consolidated Revenue sources in 1988–89 exceeded $7.6 million, a rise of more than 12 per cent on the previous year. The table shows the main grants made during the year.

Rural industry research and development grants 1988–89

Funding body	Allocation ($)
Australian Meat and Livestock Research and Development Corporation	417 793
Australian Special Rural Research Fund	257 850
Australian Water Research Advisory Council	320 295
Barley Research Committee for NSW	211 824
Barley Research Council	128 546
Chicken Meat Research Council	14 207
Cotton Research Council	431 262
Dairy Research Council	93 114
Dried Fruits Research Council	22 965
Fishing Industry Research and Development Council	811 020
Grain Legumes Research Council	67 634
Grape and Wine Research Council	49 683
Honey Research Council	37 805
Horticultural Quarantine Research Grants	46 285
Horticultural Stock and Nurseries Act Account	40 400
Oilseeds Research Council	164 360
Pig Research Council	148 146
Poultry Research Council	38 768
Rice Research Committee (IREC)	310 411
Rural Credits Development Fund	235 946
Swine Compensation Fund (NSW)	177 873
Tobacco Trust Account	33 518
Wheat Research Committee for NSW	1 062 808
Wheat Research Council	637 344
Wool Research and Development Fund	1 845 732
Rural industry research and development funds total	7 605 589

Miscellaneous grants also came from the Australian Centre for International Agricultural Research, Austrade, the National Soil Conservation Program, the Commonwealth Department of Defence, the Metropolitan Water, Sewerage and Drainage Board, the Electricity Commission of NSW and donations from marketing boards, special interest groups and private companies.

FREEDOM OF INFORMATION

A Freedom of Information Unit was created to coordinate departmental responses to applications under the new legislation. Although the legislation did not become operational until 1 July 1989, the unit presented a number of seminars to staff of the Department, Pastures Protection Boards and related organisations on the intent and requirements of the legislation. The success of this program was such that the unit will conduct regular seminars during 1989–90.

FARRER MEMORIAL RESEARCH SCHOLARSHIP FUND

The Farrer Memorial Trust was established in 1911 to perpetuate the memory of William James Farrer and to encourage and inspire agricultural scientists. Initially it awarded scholarships for 'study or research in agricultural problems'. Later it included the delivery of an annual oration and the presentation of the Farrer Memorial Medal to a distinguished agricultural scientist for service rendered in the fields of research, education or administration.

The Director-General of NSW Agriculture & Fisheries, Dr K. P. Sheridan, is the Chairman of the Trust. The other official Trustees are Mr G. R. Gregory, Deputy Director-General of the Department; Professor L. Burgess, Dean of the Faculty of Agriculture, University of Sydney; and Dr F. G. Swain, Principal, Hawkesbury Agricultural College. The non-official Trustees, representing industry, are Mr G. McCorquodale, Executive Director, NSW Flour Millers' Council; Mr H. R. M. Ross, 'Glengarry', Springside via Orange; and Mr P. E. B. MacInnes, 'Warringa', Dubbo.

The 1988 Farrer Memorial Medal was awarded to Dr Allan Smith, Director of Agriculture in Tasmania, and was presented at a function held at the Wagga Wagga Civic Theatre. Dr Smith delivered the Farrer Memorial Oration entitled 'Terra incognita'.

Mr Geoffrey Hart was awarded the 1988 Farrer Memorial Research Scholarship. Mr Hart has started his research into 'The Management of Soil Variability for Optimising Wheat Production' at the University of Sydney.

AUDITOR-GENERAL'S CERTIFICATE

TRUSTEES OF THE FARRER MEMORIAL RESEARCH SCHOLARSHIP FUND

The accounts of the Trustees of the Farrer Memorial Research Scholarship Fund for the year ended 31 December 1988 have been audited as required by Section 45(1) of the Public Finance and Audit Act 1983 and in accordance with Section 34 of that Act.

In my opinion, the accompanying balance sheet, income and expenditure and funds statements, read in conjunction with the notes thereto, exhibit a true and fair view of the financial position at 31 December 1988 and transactions for the year then ended.

Sydney
3 April 1989

K. J. Robson, FASA CPA
Auditor-General of New South Wales

STATEMENT IN ACCORDANCE WITH SECTION 41B(1)(f) OF THE PUBLIC FINANCE AND AUDIT ACT 1983

Pursuant to Regulation 11 of the Public Finance and Audit (Statutory Bodies) Regulation, 1985, we state that:

a. the financial statements and notes thereon exhibit a true and fair view of the financial position and transactions for the year ended 31 December 1988

b. the financial statements have been prepared in accordance with the provisions of the Act, the Regulation and the Treasurer's Directions

c. we are not aware of any circumstances that would render any particulars included in the financial statements to be misleading or inaccurate.

K. P. SHERIDAN
Chairman
Farrer Memorial Trust

G. R. GREGORY
Trustee

Sydney
8 February 1988

BALANCE SHEET AS AT 31 DECEMBER 1988

1987 $		1988 $
	Current assets	
65 500	Investments (at cost) (Note 4)	46 200
162	Medal stocks (at cost)	129
5 154	Accrued interest	4 738
	Cash at bank	
5 370	Commonwealth Savings Bank	1 802
17 537	Advance Bank investment account	22 642
224	Advance Bank passbook account	236
93 947	TOTAL CURRENT ASSETS	75 747
	Non-current assets	
71 200	Investments (at cost) (Note 4)	90 500
71 200	Total non-current assets	90 500
165 147	TOTAL ASSETS	166 247
	Capital	
112 022	Balance as at 1 January 1988	116 022
4 000	Donations received (Notes 2(a) & (b))	5 000
116 022	TOTAL CAPITAL	121 022
	Retained earnings	
49 125	Accumulated funds	45 225
49 125	Total retained earnings	45 225
165 147	TOTAL CAPITAL & RETAINED EARNINGS	166 247

P. ANQUETIL
Hon. Secretary
Farrer Memorial Trust
8 February 1989

INCOME & EXPENDITURE ACCOUNT FOR YEAR ENDED 31 DECEMBER 1988

1987 $		1988 $
	Income	
18 634	Interest from investments	18 009
1 113	Interest from cash at bank	1 890
1 625	Donations (Note 3)	2 276
21 372		22 175
	Expenditure	
8 206	Cost of scholarship	25 272
647	Oration expenses	783
14	Bank charges	20
8 867		26 075
12 505	Excess of income over expenditure	(3 900)
21 372		22 175

STATEMENT OF SOURCES & APPLICATION OF FUNDS FOR THE YEAR ENDED 31 DECEMBER 1988

1987 $		1988 $
	Source of funds	
	Funds from operations	
	Inflows of funds from operations	
19 747	Interest from investments and bank accounts	19 899
1 625	Donations	2 276
21 372		22 175
	Outflows of funds from operations	
8 867	Expended in the provision of scholarship and oration expenses and bank charges	26 075
12 505		(3 900)
4 000	Donations received and added to capital account	5 000
	Reduction in assets	
	Current assets	
33	Medal stocks	33
16 538		1 133
	Application of funds	
	Increase in assets	
	Current assets	
422	Accrued interest	(416)
12 116	Cash at bank	1 549
12 538		1 133
	Non-current assets	
4 000	Investments	0
16 538		1 133

NOTES TO & FORMING PART OF THE ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 1988

1. Summary of accounting policies

a The accompanying financial statements have been prepared on an accrual basis in accordance with historical cost principles, having regard to current Australian accounting standards.

b The financial statements have been prepared in accordance with the requirements of Section 41B (1) of the Public Finance and Audit Act 1983.

c Policies adopted are consistent with those applied in the previous year.

d All administration costs (including salary and wages) are met directly from the Consolidated Fund allocation to the Minister for Agriculture and Rural Affairs. Such costs are estimated to be $3200 for the year.

e Except that no provision is made for the value of accrued long service and annual leave, no material amounts were owed to or by the fund as at 31 December 1988. Long service leave and annual leave are paid out of Consolidated Fund Appropriations when such leave is take. There is no superannuation liability as at 31 December 1988.

2. Donations received and added to the Capital Account were:

		$
a.	Wheat Industry Research Committee of NSW	4 000
	Wheat Industry Research Committee of South Australia	1 000
		$5 000

b The conditions relating to the donation of $4000 from the Wheat Industry Research Committee of NSW are such that the donation must be expended in the areas of salaries, operating expenses or capital. As there are no salaries paid by the Trust and operating expenses are met from interest received on the investment of capital then the donation is credited to the Capital Account. The other amount above contributed by the Wheat Industry Research Committee of South Australia was a donation to the capital of the Trust.

3. Donations of $2276 included as income were received from other sources to fund scholarship and oration expenses.

4. Investments in public authorities and term deposits are valued at cost and market value and are held to maturity. All investments are quoted on the Sydney Stock Exchange.

1987			1988	
Cost value	Market value		Cost value	Market value
7 200	7 392	Australian Resources Development Bank	7 200	7 542
31 000	33 169	Commonwealth Development Bank of Australia	31 000	32 399
8 000	8 309	Primary Industry Bank of Australia	8 000	8 410
2 000	1 397	State Bank of NSW	2 000	1 407
88 500	93 085	NSW Treasury Corporation	88 500	83 230
$136 700	$143 352		$136 700	$132 988

INVESTMENTS AS AT 31 DECEMBER 1988

Investment	Interest rate	Maturity date	$ Amount	
Australian Resources Development Bank transferable deposit	12.25%	31.3.1989	7 200	7 200
Primary Industry Bank of Australia IBD	13.00%	31.3.1989	8 000	8 000
Commonwealth Development Bank of Australia Ltd				
CDB investment	13.5%	7.7.1989	16 000	
CDB investment	15.00%	9.4.1989	15 000	31 000
State Bank of New South Wales Loan No. 10	5.375%	31.10.1993	2 000	2 000
New South Wales Treasury Corporation				
Premier State Bonds	13.5%	1.3.1990	15 000	
Premier State Bonds	15.6%	1.7.1993	3 000	
Premier State Bonds	12.5%	1.11.1991	5 000	
Premier State Bonds	12.25%	1.3.1992	27 500	
Premier State Bonds	12.5%	1.10.1992	33 000	
Premier State Bonds	12.5%	1.10.1992	5 000	88 500
				$136 700

THE AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST

The Agricultural Scientific Collections Trust Act provides statutory protection for and ensures the long-term maintenance and improvement of the two important scientific collections of NSW Agriculture & Fisheries: the Plant Pathology Branch Herbarium and the Entomology Branch Insect and Mite Collection. Both are housed at the Biological and Chemical Research Institute, Rydalmere. They are used in research work on the taxonomy and identification of insects, mites, fungi and other microorganisms harmful to plants, and in providing day-to-day advice on the identification, host range and geographic distribution of these organisms.

Trust members are appointed by the Minister for Agriculture and Rural Affairs for five years. The Chairman of the Trust is Mr G. C. File, Executive Director (Research and Advisory Services), NSW Agriculture & Fisheries. The Director of the Collections is Mr J. Walker, Principal Research Scientist, and Curator, Plant Pathology Branch Herbarium, NSW Agriculture & Fisheries. The Secretary is Dr E. Schicha, Senior Research Scientist, and Curator, Entomology Branch Insect and Mite Collection, NSW Agriculture & Fisheries. Other Trustees are Mr M. Casimir, Director of the Institute, Biological and Chemical Research Institute, NSW Agriculture & Fisheries; Dr D. Hales, Senior Lecturer, School of Biological Sciences, Macquarie University; and Dr P. G. Valder, former Senior Lecturer, School of Biological Sciences, University of Sydney (now retired).

The address of the Trust is the Director, Agricultural Scientific Collections Trust, Biological and Chemical Research Institute, NSW Agriculture & Fisheries, Cnr Victoria Road and Pemberton Street, Rydalmere, NSW 2116.

RESEARCH

PLANT PATHOLOGY HERBARIUM

Work continued on the final manuscript of The Plant Diseases and Plant Pathogens of New South Wales: An Annotated Index. Final lists for over 180 host genera have now been prepared. Examination of specimens of Australian rust fungi continued and several new rust records, including one undescribed species, were made. Work on the 11 Uromyces species described on Acacia is almost completed, with most type specimens now examined. Work continued on the species of Colletotrichum on Xanthium spp., especially on X. spinosum (Bathurst burr). In

work on the Australian species of Pisolithus, several possible taxa have been recognised. Work on the wilt disease of Phoenix canariensis caused by Fusarium oxysporum has been completed and a paper on the sexual stage of cucurbit powdery mildew (Sphaerotheca fuliginea) in Australia has been accepted for publication.

ENTOMOLOGY COLLECTIONS

Research on the taxonomy of the beneficial predaceous mite family Phytoseiidae in Australia and neighbouring areas continued. A manuscript on the Phytoseiidae of the Philippines, prepared in cooperation with a Philippine scientist, includes standardised descriptions, illustrations and keys of 80 new species. Work on Australian mites in other families has continued.

Research into the taxonomy of the subfamily Typhlocybinae (Hemiptera: Cicadellidae) has continued. The DELTA taxonomy package developed by the CSIRO Entomology Division is being used to construct keys to the world genera directly from the literature.

Research into the taxonomy of the subfamily Deltocephalinae (Hemiptera: Cicadellidae) is continuing. Description and illustration of species of the genus Arawa Knight has begun. Species of this genus are very common and are received frequently for identification, particularly from workers in temperate Australia. The Cicadellidae have been included as a preferred research objective for 1990.

Two papers on Homoptera were published during the year. One provides a key to genera of Australian Flatidae (Hemiptera: Fulgoroidea) and notes on all flatid genera are included. The paper also includes description of four new genera containing eight new species. The new genera are Austrodascalia Fletcher, Falcophantis Fletcher, Parasiphanta Fletcher and Barsac Fletcher. The second paper is a result of co-operative work with the Victorian Department of Agriculture and Rural Affairs on the transmission of tomato big bud disease in southeastern Australia by a leafhopper, Orosius argentatus (Evans).

Research into the taxonomy of the hymenopterous family Tiphiidae continued. A revision of the genus Doratithynnus Turner has been published and revisions of Encopothynnus Turner and Rhagigaster Guérin have been completed.

IDENTIFICATION & ADVISORY WORK

PLANT PATHOLOGY HERBARIUM

Over 600 identifications were made on request during the year. Detailed information collected on the disease status of various crops will be used in trade discussions between Australia and the USA. Detailed work on smut diseases of millets and related grasses was also carried out; this will be helpful in discussions with US quarantine authorities.

ENTOMOLOGY COLLECTIONS

Identifications of 1058 insect, mite, spider, mollusc and other invertebrate samples were made. Of these, 152 were from quarantine interceptions. Specialist identifications were carried out for other State and Federal Departments and overseas workers.

CURATION OF THE COLLECTIONS

Renovations to the B wing at Rydalmere have impeded curatorial activities during the year. The Herbarium is now housed in a temporary building and will remain there until funds for permanent accommodation are obtained. The bulk of the Insect and Mite Collection has not been moved but has been sealed against dust and left in place in B wing.

Over 900 collections were added to the plant pathology herbarium, bringing the total number to well over 75 000 specimens: 69 specimens were sent on loan and several cultures were sold.

Additions to the entomology collection included approximately 4600 dry-pinned insect specimens, alcohol samples and 880 slide-mounted insects and mites. Requests for loans from specialist workers involved 414 specimens.

Reorganisation and upgrading of the collection continued with curation of the Scarabaeidae, Trogidae, Tenebrionidae, Brenthidae, Odonata, Lepidoptera and Gryllidae.

AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST STATEMENT OF INCOME & EXPENDITURE FOR THE YEAR ENDED 30 JUNE 1989

1987-88 $		NOTES	1988-89 $
	Current assets		
9,988	Cash at Treasury		18,781
9,988	TOTAL CURRENT ASSETS		18,781
	Non-current assets		
2,642	Plant and equipment (less depreciation $803)	(2.3)	2,427
2,642	TOTAL NON-CURRENT ASSETS		2,427
12,630	TOTAL ASSETS		21,208
0	Current liabilities		0
0	TOTAL LIABILITIES		0
12,630	Net assets		21,208
	Capital and retained earnings		
12,630	Accumulated funds		21,208
12,630	TOTAL CAPITAL AND RETAINED EARNINGS		21,208

AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST BALANCE SHEET AS AT 30 JUNE 1989

1987-88 $		NOTES	1988-89 $
	Income		
	Consolidated Fund appropriation		
	Minister for Agriculture & Rural Affairs		
15,000	Other services	(1.2)	15,000
2,125	Sale of cultures	(3.1)	1,875
17,125			16,875
	Expenditure		
10,384	Miscellaneous stores		5,554
323	Minor plant and equipment		0
3,743	Books		567
614	Fees for services rendered		1,280
254	Printing		319
17	Travel expenses		362
215	Depreciation	(2.2)	215
15,550			8,297
1,575	Operating surplus		8,578
11,055	Add: retained earnings 1 July		12,630
12,630	RETAINED EARNINGS AS AT 30 JUNE		21,208

AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST STATEMENT OF SOURCES & APPLICATION OF FUNDS FOR THE YEAR ENDED 30 JUNE 1989

1987-88 $		NOTES	1988-89 $
	Sources of funds		
	Funds from operations	(1)	
	Inflow of funds		
15,000	Consolidated Fund appropriation		15,000
2,125	Sale of cultures		1,875
17,125			16,875
15,335	Outflow of funds		8,082
1,790			8,793
	Application of funds		
	Increase in assets		
	Current assets		
1,790	Cash at Treasury		8,793
1,790			8,793
	(1) Reconciliation of operating surplus with funds from operations		
1,575	Operating surplus		8,578
215	Add: depreciation		215
1,790			8,793

NOTES TO & FORMING PART OF THE FINANCIAL STATEMENTS OF THE AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST FOR THE YEAR ENDED 30 JUNE 1989

1. GENERAL

1.1 The Trust is constituted under Section 5 of the Agricultural Scientific Collections Trust Act 1983 which was proclaimed to commence from 9 November 1984. This Act gives statutory protection to the scientific collections of NSW Agriculture & Fisheries, ensuring their long term maintenance and improvement. At the present time, the only two collections vested in the Trust are the Plant Pathology Branch Herbarium and the Entomology Branch Insect and Mite Collection, both located at the Biological and Chemical Research Institute, Rydalmere.

1.2 The Trust operates from an annual Consolidated Fund appropriation to the Minister for Agriculture and Rural Affairs which is transferred to a Special Deposits account for operating purposes.

1.3 Operations of the Trust are carried out by officers of NSW Agriculture & Fisheries and no salaries, wages or overhead costs are charged to or paid by the Trust. It is not possible to reasonably estimate the value of material expenditure incurred by the Department in direct support of the Trust owing to the number of staff who have some input into the maintenance of the collections and the interrelationship with normal departmental duties.

2. ACCOUNTING METHODS AND POLICIES

2.1 The financial statements for the year ending 30 June 1989 have been prepared on an accrual and historical cost basis in conformity with Australian Accounting Standards and with Section 41B of the Public Finance and Audit Act 1983 to exhibit a true and fair view of the financial position and transactions of the Trust.

2.2 Depreciation of non-current assets has been calculated on the straight line method using appropriate rates, having regard to the estimated useful life of the various assets.

2.3 Plant and equipment owned by the Trust have been defined in accordance with the Treasurer's Directions, issued from time to time, and takes into consideration the cost and anticipated life of the respective items.

3. CHANGES IN ACCOUNTING POLICY

3.1 There have been no changes in accounting policies adopted since 1987–88. A charge for the sale of living cultures of fungi and bacteria was implemented during 1987–88.

4. DEBTS, RECEIVABLES, CONTINGENT LIABILITIES AND AUDIT FEES

4.1 No receivables were owing to the Trust as at 30 June 1989.

4.2 There were no contingent liabilities in respect of the Trust as at 30 June 1989.

4.3 No audit fees were charged for 1988–89.

4.4 The Trust operates from premises provided free of service charges by NSW Agriculture & Fisheries at the Biological and Chemical Research Institute, Rydalmere. Rental charges, if payable, are estimated to be $35 000 a year.

4.5 There were no outstanding debts owed by the Trust at the end of the year.

4.6 Commitments for outstanding materials, as at 30 June 1989, are valued at $228.

NOTES TO AND FORMING PART OF THE ACCOUNTS OF THE AGRICULTURAL SCIENTIFIC COLLECTIONS TRUST FOR THE YEAR ENDED 30 JUNE 1989

STATEMENT BY MEMBERS OF THE TRUST

Pursuant to Section 41B(1)(f) of the Public Finance and Audit Act 1983 and in accordance with a resolution of the members of the Agricultural Scientific Collections Trust, we declare on behalf of the Trust that in our opinion:

1. The accompanying financial statements exhibit a true and fair view of the financial position of the Trust as at 30 June 1989 and transactions for the year then ended.
2. The statements have been prepared in accordance with the provisions of the Public Finance and Audit Act 1983, the Public Finance and Audit (Statutory Bodies) Regulation 1985 and the Treasurer's Directions.
3. In the interval between the end of the financial year and the date of these financial statements no item, transaction or event of a material and unusual nature has arisen which is likely, in the opinion of the members of the Trust, to substantially affect the results of the Trust's operations for the next financial year.

J. Walker
Director
Agricultural Scientific Collections Trust
13 July 1989

E. Schicha
Secretary

AUDITOR-GENERAL'S CERTIFICATE NSW AGRICULTURE & FISHERIES

The accounts of the Agricutural Scientific Collections Trust for the year ended 30 June 1989 have been audited in accordance with Section 34 of the Public Finance and Audit Act 1983.

In my opinion, the accompanying balance sheet and income and expenditure and funds statements, read in conjunction with the notes thereto, comply with Section 41B of the Act and exhibit a true and fair view of the financial position at 30 June 1989 and transactions for the year then ended.

J. A. Parkinson, FASA CPA
Assistant Auditor-General
Sydney
14 September 1989

STATEMENT BY DIRECTOR-GENERAL

Pursuant to Clause 8 of the Public Finance and Audit (Departments) Regulation 1986, I state that:

a The accompanying financial statements have been prepared in accordance with the provisions of the Public Finance and Audit Act 1983, the Public Finance and Audit (Departments) Regulation 1986, and the Treasurer's Directions.

b The statements present fairly the receipts and payments of that part of the Consolidated Fund, and those accounts in the Special Deposits Account operated by the Department.

c There are no circumstances that would render any particular included in the financial statements to be misleading or inaccurate.

K. P. SHERIDAN
Director-General

AUDITOR-GENERAL'S CERTIFICATE DEPARTMENT OF AGRICULTURE AND FISHERIES

The accounts of the Department of Agriculture and Fisheries for the year ended 30 June 1989 have been audited in accordance with Section 34 of the Public Finance and Audit Act 1983.

In my opinion, the accompanying summarised receipts and payments statements and statement of special deposits account balances, read in conjunction with the notes thereto, comply with Section 45E of the Act and are in accordance with the accounts and records of the Department.

J.A. PARKINSON, FASA CPA
Assistant Auditor – General
Sydney
6 October 1989

NOTES TO FINANCIAL STATEMENTS

NOTE 1. ACCOUNTING METHODS AND POLICIES

a The Financial Statements have been prepared on a program budgeting basis. The Department's receipts and payments figures were shown under seventeen program headings in 1987–88, which have been condensed to five program headings for 1988–89. In those instances where financial details were not dissected into programs, transactions have been included under the 'non-program' heading.

b The financial statements of the Department have been prepared on a cash accounting basis, with the exception of payments for salaries which are reported on an accrual accounting basis.

c The financial details provided in Tables A, B and D relate to the transactions of both the Consolidated Fund and the Special Deposits Accounts.

d The financial data have been presented in the following format:

i Table A—shows details on a line item basis of all receipts and payments of the Consolidated Fund and Special Deposits Accounts.

ii Table B—shows summarised receipts and payments of the Consolidated Fund and Special Deposits Accounts on a program basis.

iii Table C—shows balances of Special Deposits Accounts as at 30.6.89.

iv Table D—shows broad heading details of receipts and payments of the Consolidated Fund and Special Deposits Accounts dissected on a program basis.

e A reference in the receipts and payments statements to an 'estimate' figure means, in the case of an annual appropriation, the amount appropriated in the relevant Appropriation Act as advised by the Treasury.

f A reference in the receipts and payments statement to an 'actual' figure means the payments actually made by the Department in respect of the item to which it refers with the exception of the payment for salaries which are reported on an accrual basis as per (b) above.

g Estimates for Special Deposits Account receipts and payments are not prepared by the Department and are not shown within the financial statements.

h Special Deposits Account expenditures have been recorded on a line item basis, and are included with Consolidated Fund Recurrent Payments expenditure items within Table A.

i The bulk accounting classifications structure used in 1987–88 for receipts was expanded in 1988–89 to include a number of new classifications and a revised allocation of working accounts. As it was not practical to recast the previous year's figures, the rearrangement has led to a lower Grants and Subsidies figure and higher Receipts for Services Rendered and Commonwealth contribution figures.

j In 1988–89 a more appropriate revenue structure was established for Special Deposits Accounts as itemised in Table A.

NOTE 2. TRANSFER OF CONSOLIDATED FUND GRANTS TO SPECIAL DEPOSITS ACCOUNTS

An amount of $442 156 ($8 684 564—1987–88) representing Consolidated Fund Grants was transferred from the Consolidated Fund Recurrent Payments Account to the Special Deposits Account. These Receipts are not included in the Special Deposits Account Grants items and total Departmental payments have been reduced by these transfers. An amount of $2 081 884 representing receipts on Special Deposits Accounts was transferred to the Consolidated Fund. The treatment of these inter-fund transfers ensures that only net program receipts and net program payments are disclosed.

NOTE 3. AMOUNTS DUE AND UNPAID FOR GOODS AND SERVICES RECEIVED

	1988–89	1987–88
TOTAL VALUE	$924 026	$1 555 474

The amount shown is an estimate calculated on the basis of actual unpaid vouchers on hand as at 30 June 1989.

NOTE 4. OUTSTANDING COMMITMENTS AS AT 30 JUNE 1989

	1988–89 $'000	1987–88 $'000
Capital Works and Services (Contractual Commitments)*	9 578	18 983
Goods and Services	1 157	905
Lease/Hire	0	0
	10 735	19 888
* Elizabeth Macarthur Agricultural Institute, Camden Park	7 530	0
Biological and Chemical Research Institute—fire hazard reduction	2 045	0
Relocation of Tick Laboratories retention sum	3	0

NOTE 5. SCHEDULE OF REPAYABLE AMOUNTS OWING ON PUBLIC BORROWINGS AND OTHER REPAYABLE ADVANCES

a *1968–69 Advance of $50 600*
Loan period of 30 years @ $1686.67 repayable per annum. Purpose of Advance: To provide for the increased cost of construction of tourist facilities within Fisheries complexes. Balance owing on Capital Debt 30.6.89—$0 (Balance 30.6.88—$18 553.27. Repaid in full).

b *1971–72 Advance of $120 000*
Loan period of 30 years @ $4000.00 repayable per annum. Purpose of Advance: To assist in establishing a Research and Experimental Station at Narrandera. Balance owing on Capital Debt 30.6.89—$0 (Balance 30.6.88—$56 000. Repaid in full). Interest paid on above loans $8680.00—1988–89 ($9190.00—1987–88).

c *1978–79 Advance of $11 000*
Loan period of 15 years @ $1225.92 repayable per annum. Purpose of Advance: Installation of irrigation plant at Bega Dairy Demonstration Farm. Balance owing on Capital Debt 30.6.89—$0 (Balance 30.6.88—$5499.98. Repaid in full).

d *1978–79 Advance of $1000*
Loan repayable at Department's discretion. Purpose of Advance: To provide working capital to facilitate the purchase and sale of milk meter brackets in connection with Herd Recording Scheme. Balance owing on Capital Debt 30.6.89—$0 (Balance 30.6.88—$1000.00. Repaid in full).

e *1958–59 Advance of $20 000*
Loan repayable at Department's discretion. Purpose of Advance: To permit the purchase of cattle and sheep for the control of weeds and pastures at departmental institutions. Balance owing on Capital Debt 30.6.89—$0 (Balance 30.6.88—$20 000.00. Repaid in full).

NOTE 6. CONTINGENT AMOUNT PAYABLE TO THE DEPARTMENT

Meat Inspection Fees—$3 564 944 ($3 700 258—1987–88). Such fees have been outstanding for many years.

The Department, through the State Crown Solicitor's Office, has initiated legal action in a test case to prove the legality of the fees. The case has not yet come before the Court.

So as not to jeopardise the Department's legal rights in relation to other debtors, under Section 14 of the Limitation Act 1969 the Department has referred all debtors to the State Crown Solicitor's Office for initiation of legal recovery action.

Notwithstanding action taken by the Department and the State Crown Solicitor's Office to prevent the debts becoming Statute Barred, debts to the value of $1 139 544 ($477 002—1987–88) have become Statute Barred and deemed irrecoverable. A further $22 489 ($18 571—1987–88) has been recommended by the State Crown Solicitor's Office for write-off.

NOTE 7. SCHEDULE OF DEBTS WRITTEN OFF—YEAR ENDED 30 JUNE 1989

The following is a list of debts written off during the year ended 30 June 1989.

Description	1988–89 $	1987–88 $
Oyster lease rental	651	471
Apiaries Act—licence renewal	0	42
Artificial stock breeding fees	333	327
Seed testing	168	333
Overpayment of salary	1 985	2 559
Prickly Pear Destruction Commission	2 734	256
Fleece Measurement Services	1 696	0
Unpaid student fees	506	0
Emergency tail tag fees	32	52
Plant Diseases Act fees	30	625
Overpayment—Drought Fodder Subsidy	0	309
Publications	54	13
Inland angling licences	168	151
Board of Tick Control services	4	41
Telephone and service charges	857	443
Herd improvement fees	143	0
	$9 361	$5 622

NOTE 8. SALARIES AND WAGES EXPENDITURE

Salaries expenditure shown for both 1987–88 and 1988–89 funded from the Consolidated Fund and from Special Deposits Accounts includes the cost for the full year. An amount of $1 866 708 ($1 568 895—1987–88) was transferred to Special Deposits Account No. 1140 representing 8/14ths of the salary cost of the pay period commencing 23 June 1989. As from this year the net movement in transfers is reflected in the financial statements.

NOTE 9. CAPITAL WORKS AND SERVICES

Details of expenditure on Capital Works and Services are listed in Table A.

NOTE 10. SCHEDULE OF UNCOLLECTED AMOUNTS AS AT 30 JUNE 1989

Schedule A details all uncollected amounts as at 30 June 1989 totalling $693 245 ($789 132—30.6.88). Appropriate action is currently being undertaken to ensure full recovery of all debts.

NOTE 11. AUDIT FEES

The fees for auditing NSW Agriculture & Fisheries for the year ended 30 June 1989 was $95 000 ($84 700—1987–88). The Auditor received no other benefits.

NOTE 12. OTHER SERVICES

It is estimated that the cost of other services provided and not met from the Department's Budget Allocation totalled $1 545 000 in 1988–89. Details of such are as follows:

	1988–89 $'000	1987–88 $'000
Rent (Based on Rental Accommodation as supplied by DAS Office Accommodation Bureau)	1 073	998
Payroll tax	0	4 958
Government Cleaning Service (Based on estimate from Government Supply Office)	0	1 560
Repairs, Maintenance and Renewals, Public Buildings Fitouts, etc. (Based on figures determined by Public Works Department)	472	777
TOTAL	1 545	8 293

In addition, the State Crown Solicitor's Office has assisted on legal matters, and the Government Printing Office (located in various Government Office Buildings) provided printing and copying facilites. The costs of these services have not been assessed.

NOTE 13. RECEIPTS—CONSOLIDATED FUND

Revenue banked by the Department into the Consolidated Fund totalled $18 062 000 ($15 378 000—1987–88). This was dissected as follows:

a Receipts for services rendered $6 574 000
Various fees received from registration and licence renewals for the various Statutes administered by the Department. Revenue from student fees at Departmental agricultural colleges and from rental of departmental cottages.

b Commonwealth Contributions $7 232 000
These represent contributions by the Commonwealth Government for work carried out by this Department on their behalf under the provisions of Commonwealth legislation:

Plant quarantine services	$3 607 000
Commerce (Trade Descriptions) Act	$1 577 000
Animal quarantine services	$989 000
Commonwealth fisheries	$801 000
Animal export services	$230 000
Ground water control	$28 000

c Miscellaneous receipts $740 000

d Other receipts $3 516 000
Include sales of farm produce, sale of publications, sale of Government property.

NOTE 14. SPECIAL DEPOSITS ACCOUNT BALANCES HELD AND INACTIVE FOR MORE THAN TWO YEARS

Account description	Amount	Particulars
Grant Kinross Cashmere P/L	$55.03	Relevant action to be initiated to clear account
Contribution towards red scale research	$229.50	" " "
East Coast trawler patrols	$1 670.80	" " "
Kippers mushroom research	$538.00	" " "
Essex Laboratory paramphistome trial	$2 789.17	" " "
Donation IREC salary expenses	$1 024.67	" " "
Overseas visit C. J. Rigney	$216.36	" " "
Short course—Agriculture remote sensing	$778.75	" " "
Tyres and Tubes A/C other	$212.72	" " "
Survey power site Mt. Piper	$1 517.80	" " "
Survey power site Olney	$1 807.03	" " "
Survey power site Apsley	$1 908.93	" " "
Survey power site Foybrook	$1 378.47	" " "
CSRG 85–86 plant nutrition research	$4 409.35	" " "
Argentine ant research	$23.28	" " "
Salary emergency suspense Gunnedah	$(2 353.51)	" " "
Salary emergency suspense Dubbo	$(805.17)	" " "
Salary emergency suspense Leeton	$(1 956.50)	" " "
Salary emergency suspense Glenfield	$(1 206.20)	" " "
Oyster lease duty suspense Head Office	$(626.60)	" " "
Oyster lease duty suspense Gunnedah	$1 469.84	" " "
Oyster lease duty suspense Dubbo	$11.05	" " "
CSRG 83–84 remote sensing	$895.49	" " "
Monitor rice by Landsat	$2 898.37	" " "
East Cont. Grown Cit. Nursery T.	$0.79	" " "
Energy conservation tillage operations	$495.09	" " "
CSRG 84–85 oat breeding	$2.52	" " "
Molasses growing pigs	$48.21	" " "
SCFRC Abattoir Disease Monitor	$(5 000.00)	" " "
SCFRC EMC virus disease	$(486.46)	" " "
RCDF crop disease management	$(345.81)	" " "
Econ. model cattle industry	$108.13	" " "
Citrus lemon plastic wrap	$(3 094.00)	" " "
FIRC mortality oyster North Coast	$58 684.63	" " "
FIRC oyster growing industry	$(1 267.29)	" " "

Account description	Amount			Particulars
ORC soybean cropping N. Coast	$1 899.03	"	"	"
DFRC technical for irrigation	$6 381.99	"	"	"
Sale of assets Wheat Committee	$23 140.00	"	"	"
Sale of assets Wheat Council	$8 035.00	"	"	"
MUR 42 pesticides use	$(9.21)	"	"	"
ADAB Sri Lanka Support Unit	$(3 003.01)	"	"	"
Ambello P/L G. D. Ross Richmond	$762.64	"	"	"
Training agriculture quarantine survey	$(198.53)	"	"	"
Commitments Wheat Marketing Board	$421.00	"	"	"
HSNA citrus st. J. B. Forsyth	$(298.26)	"	"	"
HSNA study tour G. Lamont	$96.00	"	"	"
MUR 52 Siragcrop workshop	$115.81	"	"	"
SCFR overseas A. K. Sheridan	$(6 600.00)	"	"	"
Noxious Plants Annual Conference	$(14.80)	"	"	"
Livestock Asst Training Course	$392.07	"	"	"
HSNA diag and adv services North Coast	$149.00	"	"	"
HSNA publication HSNA projects	$5 000.00	"	"	"
Donation from Interflora	$2 000.00	"	"	"
Commonwealth Adv. Laboratory	$1 002.73	"	"	"
Donation to ultrasound research	$1 534.24	"	"	"

NOTE 15. LIABILITY FOR RECREATION AND EXTENDED LEAVE

The Department's liability for accrued leave entitlements as at 30 June 1989 was estimated at $9 917 000 for recreation leave for all employees and $26 389 000 extended leave for 1510 employees.

NOTE 16. ACCRUED LEAVE ENTITLEMENTS

The figure appearing as Salaries and Other Payments includes an amount of $1 641 307 which was transferred from Consolidated Fund to a Special Deposits Account titled 'Provision for the Payment of Leave on Termination of Employment'. The amount transferred has been calculated on the basis of 1.95% of Consolidated Fund expenditure on salaries, wages and allowances. This Special Deposits Account is purely a Treasury Account and as such payments into and from it are not reflected in Tables A and B. Nor does a balance for the Account appear in Table C. Furthermore, actual payments in respect of leave on termination are not reflected in these accounts.

NOTE 17. SUPPLEMENTATION OF FUNDS AND TRANSFER OF FUNDS

Schedule B details all supplementation of funds and transfers of funds between Programs approved by the Treasury during the financial year.

NOTE 18. SIGNIFICANT VARIATIONS BETWEEN CURRENT AND PREVIOUS YEAR RECEIPTS AND PAYMENTS ACTUALS

Schedule C details significant variations between Current and Previous Year Receipts and Payments Actuals.

NOTE 19. SIGNIFICANT VARIATIONS BETWEEN APPROPRIATION AND ESTIMATES, AND ACTUAL RESULTS

Schedule D details significant variations detected between Appropriation and Estimates, and Actual Results.

NOTE 20. RECONCILIATION OF SPECIAL DEPOSITS ACCOUNT FIGURES APPEARING IN TABLE B WITH BALANCES AS PER TABLE C

	$'000	$'000
Total of Special Deposits Account balances as at 1 July 1988 as per Table C		17 270
Add: Receipts as per Table B	18 316	
Inter-Fund Transfers as per Table B	442	18 758
		36 028
Less: Payments as per Table B	15 859	
Inter-Fund transfers as per Table B	2 082	17 941
		18 087
Less: Balance not carried forward on Treasury Account No. 1966—unclaimed monies		15
Add: Departmental expenditure against Treasury Account No. 1449—Treasury fire risks		10
TOTAL of Special Deposits Account balances as at 30 June 1989 as per Table C		18 082

SCHEDULE A: SCHEDULE OF UNCOLLECTED AMOUNTS AS AT 30.6.1989

Classification	Current	30–60 days	60–90 days	90 days and over	Total
	$	$	$	$	$
Apiaries registration fees		1 289			1 289
Swine Brand registration fees	1 090	470	260		1 820
Fat sample testing	44 058	5 250			49 308
Sale of farm produce Government property	28 757	24 411	622	8	53 798
Sale of publications	3 643	1 203	380	56	5 282
Dipping fees				8 773	8 773
Guangdong Beef Cattle Project		23 963		128 586	152 549
Herd recording fees	11 185	4 089		2 035	17 309
Student board and lodging fees			11 354	7 606	18 960
Inland angling licences				24 384	24 384
Sale of emergency tail tags	478	662	80	116	1 336
Sale of oyster spat	64 646			5 000	69 646
Fleece Measurement Service	17 433	1 420		374	19 227
Prickly Pear control works	3 816			1 333	5 149
Recovery of employer's liability for superannuation				13 090	13 090
Recovery of bond liability				26 195	26 195
Recovery of salary costs for officers on loan	31 595	7 842		32 927	72 364
Recovery of salary overpayment	1 100	4 508		11 529	17 137
Recoupment of costs under Section 18A. Plant Diseases Act				1 500	1 500
Recoupment of expenses	1 613	546		416	2 575
Drought fodder relief payments				3 004	3 004
Grow-out agreement		20 242			20 242
Laboratory testing charges	18 224	40 905	16 923	5 870	81 922
Seed certification fees	5 562	2 226	3 275	829	11 892
Miscellaneous services	11 458	1 804	288	944	14 494
TOTAL	244 658	140 830	33 182	274 575	693 245

SCHEDULE B: SUPPLEMENTATION & TRANSFER OF FUNDS APPROVED BY THE TREASURY

Plant Industries Program

Salary and payment in the nature of salary:	
Salaries, wages and allowances	$26 000
Maintenance and working expenses:	
Total maintenance and working expenses	$286 000
Plant and equipment:	
Other major plant and equipment	$137 000
	$449 000

Animal Production Services Program

Other services:	
Beekeeper compensation	$5 000
	$5 000

Animal Health Services Program

Maintenance and working expenses:	
Total maintenance and working expenses	$2 000
Plant and equipment:	
Other major plant and equipment	$20 000
Other services:	
Eradication of noxious insects and animal pests on unoccupied Crown Lands	$6 000
	$28 000

Administration and Support Services

Maintenance and working expenses:	
Total maintenance and working expenses	$(13 000)
Grants and subsidies:	
Rural Counsellors—contribution	$1 000
Other services:	
Overseas visits	$12 000
	$0

SCHEDULE C: SUMMARY OF SIGNIFICANTS VARIATION BETWEEN CURRENT & PREVIOUS YEAR—RECEIPTS & PAYMENTS ACTUALS

Consolidated Fund recurrent receipts

Total receipts for 1988–89 of $34 374 000 were less than the amount received in 1987–88 of $36 534 000.

Significant variations are commented upon below but because of the revised method of allocation of receipts within line items, some large variations in numeric values have occurred, particularly in subtotals which are not by nature variations but are changes of composition.

Reductions in receipts during 1988–89 were incurred in the following items owing to the cyclical nature of collections of biannual and triannual fees.

a Apiary registration fees $28 105 ($80 972 1987–88)—decrease owing to biannual registration fees being received last year.

b Registration of pesticides $114 129 ($184 482 1987–88—decrease owing to triannual registration fees being received last year.

c Registration of swine brands $27 966 ($46 560 1987–88)—decrease owing to biannual registration fees being received last year.

d Registration of stock foods $48 352 ($128 330 1987–88)—introduction of ability to pay registration fees up to three years in advance, resulting in pre-payment of registration fees during last year.

e Registration of stock medicines $165 461 ($228 841 1987–88)—decrease in volume of licences granted for registration of stock medicines.

g Broiler growing agreements $16 560 ($26 360 1987–88)—high level of collection of outstanding broiler growers' registration fees during 1987–88.

Other reductions

a Inland Angling Licences were abolished on 19 April 1988. The amount of $1 042 000 was received in 1987–88.

b Cattle Compensation Fund interest received fell by $1 192 958 in 1988–89. The previous year's high level arose from the receipt of a backlog of interest.

Increases

a Commonwealth fisheries services—The increase from $381 000 in 1987–88 to $801 000 was granted to cover the increased level of licensing and surveillance activities undertaken on behalf of the Commonwealth.

b Overseas projects, employment programs, ground water control—Receipts for these projects were not recorded separately last year.

c Other sales—Sales of farm produce have increased and this line item has been subdivided.

d For the first time the computer allocation of $2 453 200 has been treated as a receipt. Previously expenditure for computer purchases was paid directly from a Treasury account.

Consolidated Fund recurrent payments

a Payroll Tax expense is now met from departmental resources. Previously Treasury recorded this payment.

b Salary, wages and allowance payment reductions following staffing restraints.

SCHEDULE D: SIGNIFICANT VARIATIONS BETWEEN APPROPRIATION & ESTIMATES & ACTUAL RESULTS

(This schedule does not form part of the accounts subject to audit.)

Consolidated Fund recurrent payments

1. *Salaries and other employee payments*

Payments for leave on retirement, resignation etc.
Estimate $1 957 000. Actual $1 641 307. The variation is explained in Note 16 to the Financial Statements.

2. *Maintenance and working expenses*

a Motor Vehicle running costs, hire etc.
Estimate $6 462 000. Actual $3 828 000. The expected charging system for leasing motor vehicles from the Government Supply Office was not fully implemented in 1988–89.

b Marine craft running costs
Estimate $380 000. Actual $571 000. Major modifications were made to EPV *Tracker II* to meet the Uniform Shipping Law requirements.

3. *Plant and equipment*

a Purchase of motor vehicles
Estimate $1 297 000. Actual $232 000. The expected system for the changeover costs of motor vehicles was not fully implemented in 1988–89.

b Purchase of livestock
Estimate $77 000. Actual $53 000. Livestock purchases for Graham Park Breeding Centre did not proceed due to transfer of the centre to the N.S.W. Dairy Farmers Association.

4. *Other services*

a Maintenance and relocation of travelling stock routes
Estimate $100 000. Actual $30 000. Provisional estimate; value expended arises from necessary relocations.

b Meshing of sharks
Estimate $380 000. Actual $261 000. The meshing season has been shortened: previously August to May; now September to April.

5. *Payments other*

Estimate $0. Actual $2 726 000. Payments by the Department arising during the financial year for which the Department does not provide forward estimates.

TABLE A.1 Summarised receipts and payments statement of the Consolidated Fund and the Special Deposits Accounts by item for the year ended 30 June 1989

Details	Notes	1987–88 Actual $'000	1988–89 Estimate $'000	1988–89 Actual $'000
RECEIPTS				
Receipts for services rendered				
Registration and licence fees		3 168	0	2 439
Fees for services rendered		2 614	0	4 628
Accommodation and student fees		680	0	694
	Note 1(i)	6 462	0	7 761
Commonwealth contributions				
Animal quarantine services		939	0	989
Animal export services		217	0	230
Commerce (Trade Descriptions) Act services		1 497	0	1 577
Plant quarantine services		3 408	0	3 665
Commonwealth fisheries services		381	0	801
Overseas projects		0	0	135
Employment programs		0	0	355
Ground water control project		0	0	28
Research grants		358	0	503
	Note 13(b)	6 800	0	8 283
Grants and subsidies				
Grants—industry/private bodies		15 725	0	8 070
Grants—public authorities		0	0	291
Grants—computer funding		0	0	2 453
Grants—other state governments		0	0	92
Grants—employment schemes		1 082	0	724
	Note 1(i)	16 807	0	11 630
Other receipts				
Sales of plant and equipment		0	0	596
Sales of farm produce		2 222	0	2 110
Sales of publications		0	0	232
Levies (Noxious Insects Destruction Account)		1 198	0	1 310
Recovery of employee expenses and on-costs		709	0	873
Interest on investments		767	0	860
Miscellaneous receipts		0	0	421
		4 896	0	6 402
Subtotal receipts		34 965	0	34 076
Balance of salaries—net	Note 8	1 569	0	298
TOTAL—RECEIPTS	Note 18	36 534	11 173	34 374

Table A.2. Summarised receipts and payments statement of the Consolidated Fund and the Special Deposits Accounts by item for the year ended 30 June 1989.

Details	Notes	1987–88 Actual $'000	1988–89 Estimate $'000	1988–89 Actual $'000
PAYMENTS				
Employee-related payments				
Salaries, wages and allowances	Note 18	93 424	89 012	89 557
Payments for leave on retirement, resignation, etc.	Note 19	2 478	1 957	1 642
Overtime		1 185	1 046	1 042
Workers compensation insurance		1 375	1 397	1 482
Meal allowances		55	44	34
Payroll tax	Note 18	1 263	5 555	4 928
Employer's contribution to superannuation schemes		1 226	883	1 468
Fringe Benefits Tax		318	343	302
Long service leave		104	0	0
Inter-fund transfers	Note 2	(5 001)	0	0
TOTAL SALARIES AND EMPLOYEE RELATED PAYMENTS		96 427	100 237	100 455
Maintenance and working expenses				
Expenses in connection with buildings				
Rent		1 197	1 245	1 344
Payment of rates, charges etc.		375	418	339
Cleaning		81	1 830	1 734
Maintenance, alterations, additions and renewals		2 125	2 600	2 250
Subsistence and transport expenses				
Travelling, removal and subsistence expenses		4 639	4 746	4 557
Motor vehicles—running costs, maintenance, hire and insurance	Note 19	2 997	6 462	3 828
Marine craft—running costs	Note 19	360	380	571
Freight, cartage and packing		257	274	258
General expenses				
Advertising and publicity		123	161	192
Books, periodicals and papers		535	473	432
Postal and telephone expenses		3 150	3 143	3 307
Fees for services rendered		3 530	4 149	4 815
Stores, provisions, furniture, equipment, minor plant etc. (including maintenance and repairs)		13 332	10 929	11 403
Printing and stationery		1 301	1 262	1 218
Gas and electricity		2 209	2 325	2 520
Laundry expenses		22	22	19
Other insurances		35	24	28
Minor expenses (not elsewhere included)		133	83	42
Out-of-pocket expenses		0	0	4
Inter-fund transfers	Note 2	(2 904)	0	0
TOTAL MAINTENANCE AND WORKING EXPENSES		33 497	40 526	38 861

Table A.3. Summarised receipts and payments statement of the Consolidated Fund and the Special Deposits Accounts by item for the year ended 30 June 1989.

Details	Notes	1987–88 Actual $'000	1988–89 Estimate $'000	1988–89 Actual $'000
PAYMENTS (continued)				
Plant and equipment				
Purchase of motor vehicles	Note 19	1 133	1 297	232
Major plant and equipment		2 498	695	1 876
Purchase of marine craft		344	225	197
Purchase of equipment for fisheries inspectors		47	60	59
Purchase of livestock	Note 19	0	77	574
Purchase of computers and related payments		1 126	2 074	1 864
Inter-fund transfers		(672)	0	0
TOTAL PLANT AND EQUIPMENT		4 476	4 428	4 802
Grants and subsidies				
Destruction of noxious weeds—grant to local government bodies		2 500	3 500	3 500
Share of underwriting—Bicentenary Wool Conference		10	10	0
Wild Dog Destruction Board		51	65	51
State Agricultural Bureau and branches		1	2	1
Royal Agricultural Society		50	50	50
Australian Journal of Experimental Agriculture		29	30	29
Agricultural Societies Council NSW		1	1	1
C. B. Alexander Foundation		5	5	5
CBA International		37	40	33
Tobacco research		5	5	5
Pastures Protection Boards		15	54	39
Rural counsellors—contribution		82	120	121
TOTAL GRANTS AND SUBSIDIES		2 786	3 882	3 835
Other services				
Virus-tested fruits repositories		20	25	23
Commodity treatment of fresh fruit		20	31	31
Food preserving problems		98	101	101
Fruit fly suppression		35	40	40
Plant quarantine publicity		39	39	24
Green snail eradication		10	14	11
Agricultural Scientific Collections Trust		15	15	15
Eradication of potato cyst nematode		10	4	3
Noxious Plants Advisory Committee		28	28	27
Control of legume inoculants		17	17	17
Beekeepers compensation		33	30	30
Chicken Meat Industry Committee		16	19	15
International Bee Conference		0	6	0
Eradication of noxious insects and animal pests on unoccupied Crown Lands		20	14	20
Maintenance and relocation of travelling stock routes	Note 19	100	100	30
Feral animal exotic disease control study		0	16	0
Cattle tick compensation		0	1	0
Fencing and other facilities		239	220	220
Cattle Tick research		58	60	60

TABLE A.4. Summarised receipts and payments statement of the Consolidated Fund and the Special Deposits Accounts by item for the year ended 30 June 1989.

Details	Notes	1987–88 Actual $'000	1988–89 Estimate $'000	1988–89 Actual $'000
PAYMENTS (continued)				
NSW Recreational Fishing Advisory Council —expenses		12	9	9
Meshing of sharks	Note 19	298	380	261
Purchase of oyster lease signs		10	17	10
Contribution to Danish seine research		87	162	81
Overseas visits		13	35	45
NSW Institute of Rural Studies		4	6	6
Repairs to roads		70	50	25
Support of agricultural courses at departmental colleges		155	0	0
Tocal Homestead maintenance		27	27	27
Management of Australian Biblography of Agriculture		17	17	17
Visiting agricultural specialists' expenses		12	12	8
Meat Industry Authority—assistance		0	250	250
Payments for rural adjustment (State)		0	2 344	2 344
Payments for rural adjustment (Commonwealth)		0	13 500	14 892
Disposal of organochlorine pesticide waste		1 050	0	0
Adjustment assistance to NSW sugar industry		2 669	1 161	928
Inter-fund transfers		(108)	0	(143)
TOTAL OTHER SERVICES		5 074	18 750	19 427
Payments—other				
Administration charges		0	0	61
Repairs to fire-damaged premises		0	0	10
Investments		0	0	49
Compensation payments		864	0	280
Payments to Commonwealth for licences		0	0	88
Payments to Commonwealth for boat levies		0	0	376
Repayable advance working capital		0	0	(5)
Payments—General		2 716	0	0
Balance of salaries		1 592	0	0
TOTAL PAYMENTS—OTHER	Note 19	5 172	0	859
TOTAL RECURRENT PAYMENTS		147 432	167 823	168 239
Capital works and services				
Biological & Chemical Research Institute—safety renovations		570	977	566
Temora and Deniliquin—Outreach Centres		14	0	0
Establishment of Deniliquin field station		154	0	0
Elizabeth Macarthur Institute—Camden Park		9 861	17 214	14 569
Relocation of Board of Tick Control laboratories		113	248	246
Oyster hatchery—Port Stephens		631	65	57
Construction of Offshore Patrol Vessel		0	201	201
BWFCRS Port Stephens—water pumping facility upgrade		0	87	87
C. B. Alexander Agricultural College—extensions		1 023	361	213
Bathurst Fisheries Cottage—replacement		75	3	0
Commonwealth special equipment grant		0	441	321
Acquisition of plant and equipment, and maintenance of roads and cottages		1 847	2 200	2 200
TOTAL CAPITAL WORKS AND SERVICES		14 288	21 797	18 460
TOTAL PAYMENTS		161 720	189 620	186 699
EXCESS OF PAYMENTS OVER RECEIPTS		125 186	178 447	152 325

TABLE B. Summarised receipts and payments statement of the Consolidated Fund and the Special Deposits Accounts by program for the year ended 30 June 1989.

Details	Notes	RECEIPTS 1987–88 Actual $'000	1988–89 Estimate $'000	1988–89 Actual $'000	Notes	PAYMENTS 1987–88 Actual $'000	1988–89 Estimate $'000	1988–89 Actual $'000
Plant Industries Program								
Consolidated fund		6 543	5 905	6 902	Note 17	47 336	52 897	52 189
Special Deposits Accounts		4 622	0	4 440		6 613	4 484	6 026
Gross total		11 165	5 905	11 342		53 949	57 381	58 215
Less inter-fund transfers		0	0	17		851	0	310
NET TOTAL		11 165	5 905	11 325		53 098	57 381	57 905
Animal Production Services Program								
Consolidated Fund		2 655	1 731	3 276	Note 17	15 452	17 447	16 699
Special Deposits Accounts		6 206	0	5 911		3 758	3 109	2 361
Gross total		8 861	1 731	9 187		19 210	20 556	19 060
Less inter-fund transfers		0	0	787		54	0	23
NET TOTAL		8 861	1 731	8 400		19 156	20 556	19 037
Animal Health Services Program								
Consolidated Fund		2 370	2 101	3 517	Note 17	33 694	43 639	40 588
Special Deposits Accounts		4 007	0	1 843		3 925	1 287	1 422
Gross total		6 377	2 101	5 360		37 619	44 926	42 010
Less inter-fund transfers		0	0	1 021		1 289	0	28
NET TOTAL		6 377	2 101	4 339		36 330	44 926	41 982
Fish Industries Program								
Consolidated Fund		1 366	116	2 234	Note 17	11 856	14 092	13 160
Special Deposits Accounts		2 197	0	1 528		8 477	1 549	1 862
Gross total		3 563	116	3 762		20 333	15 641	15 022
Less inter-fund transfers		0	0	241		6 491	0	81
NET TOTAL		3 563	116	3 521		13 842	15 641	14 941
Administration and Support Services Program								
Consolidated Fund		2 444	1 320	2 211	Note 17	33 047	48 176	48 646
Special Deposits Accounts		1 448	0	639		2 343	2 940	2 824
Gross total		3 892	1 320	2 850		35 390	51 116	51 470
Less inter-fund transfers		0	0	16		0	0	0
NET TOTAL		3 892	1 320	2 834		35 390	51 116	51 470
Non-program Receipts and Payments								
Consolidated Fund		0	0	0		0	0	0
Special Deposits Accounts		2 676	0	3 955		3 904	0	1 364
Gross total		2 676	0	3 955		3 904	0	1 364
Less inter-fund transfers		0	0	0		0	0	0
NET TOTAL		2 676	0	3 955		3 904	0	1 364
Total Receipts and Payments								
Consolidated Fund		15 378	11 173	18 140		141 385	176 251	171 282
Special Deposits Accounts		21 156	0	18 316		29 020	13 369	15 859
Gross total		36 534	11 173	36 456		170 405	189 620	187 141
Less inter-fund transfers		0	0	2 082	Note 2	8 685	0	442
NET TOTAL		36 534	11 173	34 374		161 720	189 620	186 699

TABLE C. Statement of Special Deposit Account balances as at 30 June 1989.

1987–88 Cash $'000	1987–88 Securities $'000	1987–88 Total $'000	Account title	1988–89 Cash $'000	1988–89 Securities $'000	1988–89 Total $'000
			Treasury Account No. 0642			
4 559	0	4 559	Department of Agriculture Sundry Deposits Account	4 259	49	4 308
			Treasury Account No. 0643 Tuberculosis and Brucellosis Eradication Campaign			
28	0	28	Working Account	0	0	0
			Treasury Account No. 0710			
69	0	69	Australian Extension Services Grant	86	0	86
			Treasury Account No. 1053			
0	0	0	Computer Funding Priorities Committee Account	589	0	589
			Treasury Account No. 1108 Advances to be Recovered Account—			
(6)	0	(6)	Bega Dairy Demonstration Farm	0	0	0
			Treasury Account No. 1140			
1 569	0	1 569	Balance of Salaries—Adjustment Suspense Account	1 867	0	1 867
			Treasury Account No. 1404			
506	5 750	6 256	Cattle Compensation Fund	39	6 600	6 639
			Treasury Account No. 1426			
52	0	52	Inland Fisheries Fund	0	0	0
			Treasury Account No. 1433			
2 144	0	2 144	Noxious Insects Destruction Account	2 693	0	2 693
			Treasury Account No. 1437			
15	0	15	Prickly Pear Destruction Account	0	0	0
			Treasury Account No. 1446			
210	1 550	1 760	Swine Compensation Fund	202	1 550	1 752
			Treasury Account No. 1470			
10	0	10	Agricultural Scientific Collections Trust Account	19	0	19
			Treasury Account No. 1602			
483	0	483	Commercial Fisheries Exploration and Development Fund	0	0	0
			Treasury Account No. 1669			
35	0	35	Tidal Angling Fund	0	0	0
			Treasury Account No. 1670			
15	0	15	Tobacco Industry Trust Account	0	0	0
			Treasury Account No. 1749			
211	0	211	Commonwealth Fisheries Act	128	0	128
			Treasury Account No. 1820 Provision for commitments outstanding on the Consolidated			
55	0	55	Fund Recurrent Expenditure Account as at 30 June	0	0	0
			Treasury Account No. 1966			
15	0	15	Unclaimed Moneys Account	1	0	1
9 970	7 300	17 270		9 883	8 199	18 082

TABLE D. Disclosure of receipts and payments dissections.

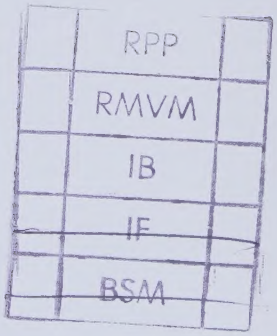
Part A. The table below details the program receipts of Consolidated Fund and Special Deposits Accounts

1987–88 Receipts	Program description	Receipts for services rendered	Commonwealth contribution	Grants and subsidies	Other receipts	Total receipts
$'000		$'000	$'000	$'000	$'000	$'000
11 165	Plant Industries	920	5 590	3 862	953	11 325
8 861	Animal Production Services	2 101	15	2 996	3 288	8 400
6 377	Animal Health Services	1 702	1 354	307	976	4 339
3 563	Fish Industries	1 410	839	1 106	166	3 521
3 892	Administration and Support Services	1 628	130	68	1 008	2 834
2 676	Non-program Receipts	0	355	3 291	309	3 955
36 534		7 761	8 283	11 630	6 700	34 374

TABLE D. Disclosure of receipts and payments dissections.

Part B. The table below details the program payments of Consolidated Fund and Special Deposits Accounts.

1987–88 Payments	Program description	Salaries and other employee payments	Maintenance and working expenses	Capital works	Other payments	Total payments
$'000		$'000	$'000	$'000	$'000	$'000
53 098	Plant Industries	39 343	12 264	1 580	4 718	57 905
19 156	Animal Production Services	12 748	5 205	161	923	19 037
36 330	Animal Health Services	19 468	6 466	15 211	837	41 982
13 842	Fish Industries	8 580	4 419	406	1 536	14 941
35 390	Administration and Support Services	19 108	10 351	1 102	20 909	51 470
3 904	Non-program Receipts	1 208	156	0	0	1 364
161 720		100 455	38 861	18 460	28 923	186 699


RPP
RMVM
IB
IF
BSM

Trees on Farms